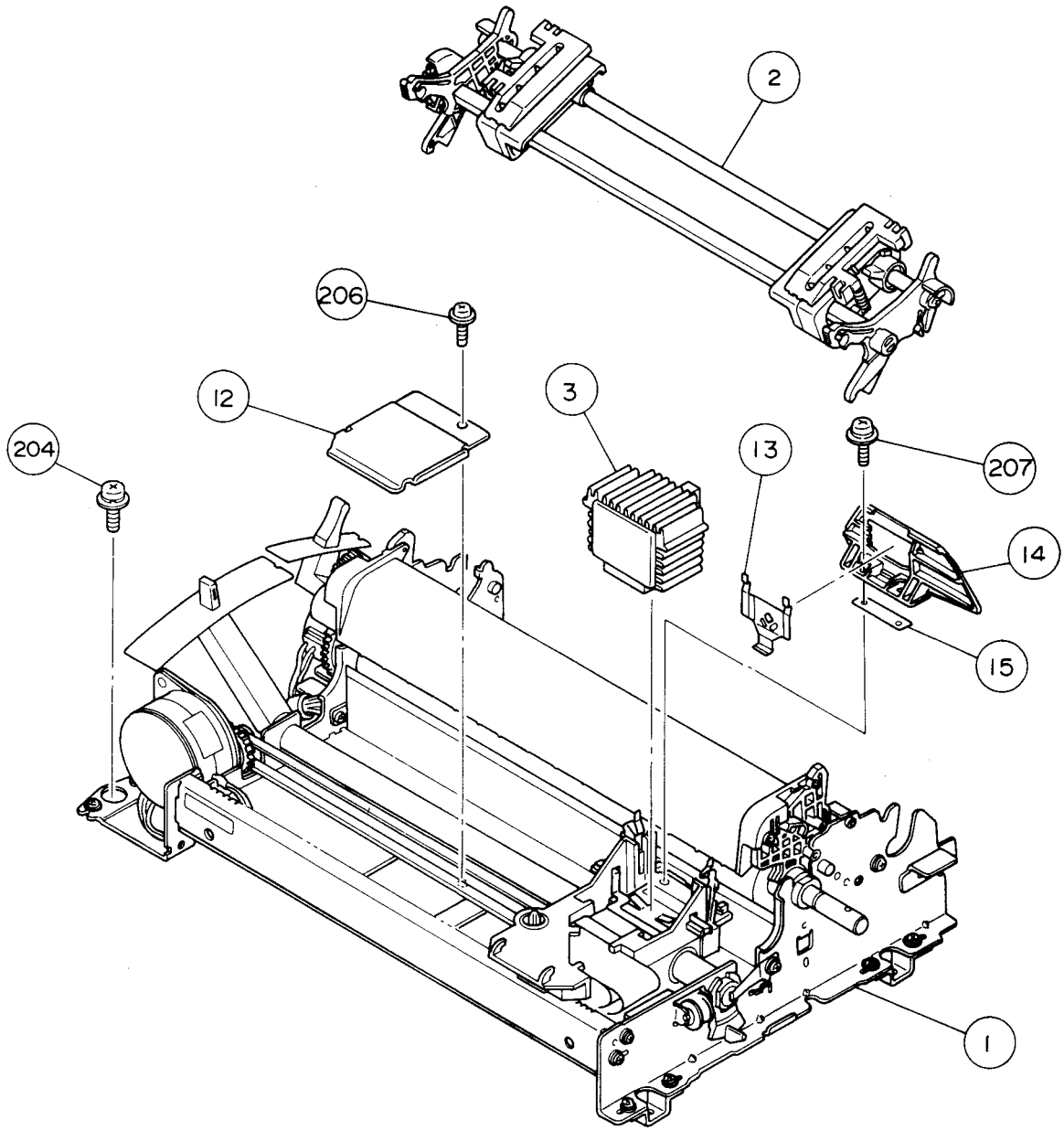

Pinwriter® P22Q/P32Q Maintenance Guide

NEC

NEC Corporation

808-870261-609-A Rev. 00
2-93

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Manufacturer's Instructions and User's Responsibility to Prevent Radio Frequency Interference

Manufacturer's Instructions

The user must observe the following precautions in installing and operating this device:

1. Operate the equipment in strict accordance with the manufacturer's instructions for the model.
2. Plug the unit into a properly-grounded wall outlet and use the power cord supplied with the unit, unmodified.
3. Always operate the unit with the factory-installed cover on the unit.
4. Make no modification to the equipment which would affect its meeting the specified limits of the Rules.
5. Maintain the equipment in a satisfactory state of repair.
6. Use a shielded and properly-grounded I/O cable to ensure compliance of this unit to the specified limit of the Rules.

User's Responsibility

The user is ultimately responsible for correcting problems that arise from harmful radio frequency emissions from equipment under his control. If this equipment does cause interference to radio or television reception (which can be determined by turning the equipment off and on), the user is encouraged to try to correct the interference by one of the following measures. All of these responsibilities and any others not mentioned are exclusively at the expense of the user.

1. Change in orientation of the receiving device antenna.
2. Change in orientation of the equipment.
3. Change in location of equipment.
4. Change in equipment power source.

If these attempts are unsuccessful, install one or all of the following devices:

1. Line isolation transformers
2. Line filters
3. Electro-magnetic shielding

If necessary, the user should consult the dealer, NEC, or an experienced radio/television technician for additional suggestions.

NOTE

The operator of a computing device may be required to stop operating his device upon finding that the device is causing harmful interference and it is in the public interest to stop operation until the interference problem has been corrected.

Contents

Page

Abbreviations xiii

Section 1 General Information

Mother Board 1-3
- Microprocessor Unit 1-6
- Memory 1-6
- Gate Array 1-6
- Driver Controller 1-6
- Interface 1-6

Power Board 1-6
- AC Input Circuit 1-9
- Noise Filter Circuit 1-9
- Rush Current Suppression Circuit 1-9
- Primary Rectifying and Smoothing Circuit 1-9
- Starting Circuit 1-9
- Drive Circuit 1-9
- Inverter Circuit 1-10
- Control Circuit 1-10
- Overvoltage Protection Circuit 1-11
- Overcurrent Protection Circuit 1-11
- Surge Killer Circuit 1-11
- Secondary Rectifying and Smoothing Circuit 1-11
- +5 V Dropper Circuit 1-11
- Feedback Circuit 1-11
- Photocoupler 1-12

Mechanism Assembly 1-12
- Print Head Assembly 1-12
- Carrier Assembly 1-14
- Spacing Assembly 1-16
- Paper Feed Assembly 1-17
- Tractor Unit 1-19
- Sensor Assembly 1-20
- MDL Sensor Assembly 1-23
- Ribbon Cartridge 1-24

Control Panel 1-25
Optional RS-232C Interface 1-25
Specifications 1-26

Section 2 Setup and Check

Unit Setup 2-1
- Unpacking 2-2
- Installing the Ribbon Cartridge 2-3
- Connecting the Power and Interface Cables 2-5

Unit Check 2-7
- Printer Self-Tests 2-7
  - Power-on Test 2-7
  - Print Head and Print Quality Check 2-8
  - HEX Dump 2-10

Contents (cont'd)

Page

Section 3 Operation

Controls and Indicators 3-1
Status Codes 3-3
Menu Mode 3-4
Using the Control Panel 3-4
Accessing the Menu Mode 3-5
Secret Mode 3-7
Memory Switch Descriptions 3-7
Accessing the Secret Mode 3-16
Automatic Model Recognition 3-18

Section 4 Maintenance

Cleaning 4-1
Adjustments 4-2
Card Holder Adjustment 4-2
Print Head Gap Adjustment 4-4
Print Force Sensor Adjustment 4-7
First Print Position Adjustment 4-9
Timing Belt Tension Adjustment 4-10
Lubrication 4-12

Section 5 Troubleshooting

Error Codes 5-1
Power Supply Test Points 5-3
PSC POWER (C):808-891154-313-B 5-3
Specific Troubleshooting Procedures 5-4

Section 6 Disassembly and Reassembly

General Maintenance Rules 6-1
Required Tools 6-2
Printer Disassembly 6-2
Top Cover Assembly Removal 6-2
Tractor Unit Removal 6-3
Middle Cover Assembly Removal 6-4
Control Panel Assembly Removal 6-5
Feed Roller Unit Removal 6-6
Print Head Removal 6-7
Card Holder and Print Mask Removal 6-8
Carrier Cable Assembly Removal 6-9
Paper Thickness Setting Lever Removal 6-12
SP Motor Assembly Removal 6-14
Carrier Assembly Removal 6-15
LF Motor Assembly Removal 6-19
Sensor Assembly Removal 6-20
Paper Selection Lever and Slide Gear Removal 6-22
Release Arm Removal 6-24
MDL Sensor Assembly Removal 6-25
Platen Assembly Removal 6-26
Mechanism Unit Removal 6-28

Contents (cont'd)

Page

Mother Board Removal 6-30
Power Board Removal 6-32

Section 7 Illustrated Parts Breakdown

Optional Parts 7-1
Spare Parts 7-1
Illustrated Parts Breakdown 7-4

Section 8 Diagrams

Figures

Figure	Title	Page
1-1	Front View	1-1
1-2	Rear View	1-2
1-3	Inside View	1-2
1-4	Printer Block Diagram	1-3
1-5	Mother Board Block Diagram	1-4
1-6	Gate Array Functional Block Diagram	1-5
1-7	Block Diagram of PSC POWER (C), 808-891154-313-A	1-8
1-8	Print Head Assembly	1-13
1-9	Carrier Assembly	1-14
1-10	Ribbon Feed Assembly	1-15
1-11	Spacing Assembly	1-16
1-12	Gear Transmission for Platen Drive	1-17
1-13	Gear Transmission for Push Tractor Drive	1-18
1-14	Push Tractor Paper Path	1-19
1-15	Pull Tractor Paper Path	1-19
1-16	Home Position Sensor	1-21
1-17	Print Force Sensor (Model P22Q)	1-21
1-18	Paper Selection Sensor	1-22
1-19	MDL Sensor Assembly	1-23
1-20	Ribbon Cartridge	1-24
1-21	Control Panel	1-25
1-22	RS-232C Interface Board	1-25
2-1	Printer Shipping Package	2-2
2-2	Printer and Accessories	2-2
2-3	Print Head Carrier	2-3
2-4	Ribbon Cartridge	2-4
2-5	Cartridge Installation	2-4
2-6	Power Connector	2-5
2-7	Parallel Interface Connector	2-6
2-8	Serial Interface Connector	2-6
2-9	Self-Test Printout	2-9
2-10	Sample Hex Dump	2-10
3-1	Control Panel	3-1
3-2	Example of Memory Switch Settings	3-6
3-3	Example Printout of the Secret Mode	3-17
4-1	Card Holder Adjustment	4-2
4-2	Card Holder Check	4-3
4-3	Platen Gap Check Jig	4-4
4-4	Eccentric Bushing (Model P22Q)	4-5
4-5	Print Head Adjustment (Model P22Q)	4-5
4-6	Print Head Adjustment (Model P32Q)	4-6
4-7	Print Force Sensor – Position 5 (Model P22Q)	4-8
4-8	Print Force Sensor – Position 6 (Model P22Q)	4-8
4-9	Sensor Assembly Mounting Screw	4-9
4-10	Timing Belt Tension Adjustment	4-10
4-11	SP Motor Mounting Screws	4-11
4-12	Balancer Weight Assembly Removal (Model P32Q only)	4-11
4-13	Mechanical Assembly Lubrication Points	4-13

Figures (cont'd)

Figure	Title	Page
4-14	Paper Selection Lever Lubrication Points	4-13
4-15	Paper Feed Assembly Lubrication Points	4-14
4-16	Paper Guide Assembly Lubrication Points	4-14
4-17	Feed Roller Unit Lubrication Points	4-15
4-18	Tractor Unit Lubrication Points	4-15
4-19	Paper Thickness Setting Lever Lubrication Points	4-16
4-20	Lubrication Points of Sheet Feeder - Pressure Roller	4-17
4-21	Lubrication Points of Sheet Feeder - Clutch Subassembly	4-17
5-1	Output Voltage Check of PSC POWER (C) – GRP 313	5-3
5-2	Power Lamp Does Not Light	5-5
5-3	Carrier Does Not Initialize	5-7
5-4	Control Panel Buttons Do Not Function Properly	5-8
5-5	Control Panel Lamps Do Not Function Properly	5-9
5-6	Self-Test Printout is Abnormal	5-10
5-7	On-Line Printing Using the Parallel Interface is Abnormal	5-11
5-8	On-Line Printing Using the Serial Interface is Abnormal	5-13
5-9	PSC POWER (C) – GRP 313 is Faulty	5-15
6-1	Top Cover Removal	6-2
6-2	Sheet Guide Removal	6-3
6-3	Tractor Unit Removal	6-3
6-4	Middle Cover Assembly Removal	6-4
6-5	Control Panel Cable	6-5
6-6	Control Panel Assembly	6-5
6-7	Feed Roller Unit Removal	6-6
6-8	Top and Roller Covers	6-7
6-9	Print Head Removal	6-7
6-10	Card Holder Removal	6-8
6-11	Print Mask Removal	6-8
6-12	Carrier Cable Connectors	6-9
6-13	CR FG Plate (A) Removal	6-10
6-14	CR FG Plate Removal	6-10
6-15	Cable Clamps	6-11
6-16	Connector Removal	6-11
6-17	Paper Thickness Setting Lever Removal (Model P22Q)	6-12
6-18	Paper Thickness Setting Level Removal (Model P32Q)	6-13
6-19	SP Motor Cable	6-14
6-20	SP Motor Assembly Removal	6-14
6-21	Driven Pulley Assembly Removal	6-16
6-22	Guide Shaft Spring Removal (Model P22Q only)	6-16
6-23	Shaft FG Plate Removal	6-17
6-24	Eccentric Bushing Removal	6-17
6-25	Carrier Assembly Removal	6-18
6-26	LF Motor Cable	6-19
6-27	LF Motor Screws	6-19
6-28	Sensor Assembly (1)	6-21
6-29	Sensor Assembly (2)	6-21
6-30	Paper Selection Lever Removal	6-22
6-31	Slide Gear and Spring Removal	6-23
6-32	Release Arm Removal	6-24

Figures (cont'd)

Figure	Title	Page
6-33	MDL Sensor Assembly Removal	6-25
6-34	Platen Gear	6-26
6-35	E-ring Removal (Model P32Q only)	6-27
6-36	Platen Assembly	6-27
6-37	Carrier Cable Connectors	6-28
6-38	Connector CN1	6-29
6-39	Connectors CN5 through CN7	6-29
6-40	Mechanism Unit Screws	6-29
6-41	Shield Cover	6-30
6-42	Mother Board, G8FVLE PCB	6-31
6-43	Power Board Removal	6-32
7-1	Typical Codes for Attaching Hardware	7-4
7-2	Family Tree-Pinwriter P22Q	7-6
7-3	Family Tree-Pinwriter P32Q	7-17
7-4	Pinwriter P22Q	7-29
7-5	Pinwriter P32Q	7-31
7-6	PSC' Printer Unit (N)	7-33
7-7	PSC' Printer Unit (W)	7-35
7-8	PSC' Mechanism Unit (N)	7-37
7-9	PSC' Mechanism Unit (W)	7-39
7-10	Carrier Assembly	7-40
7-11	Frame Assembly (N)	7-42
7-12	Frame Assembly (W)	7-44
7-13	SP Motor Assembly	7-45
7-14	Feed Roller Unit (N)	7-46
7-15	Feed Roller Unit (W)	7-47
7-16	Tractor Unit (N)	7-48
7-17	Tractor Unit (W)	7-49
7-18	Mother Board, G8FVLE	7-52
7-19	Power Board, PSC POWER (C) - GRP 313	7-55
7-20	Base Cover Assembly (S)	7-56
7-21	Base Cover Assembly (L)	7-57
7-22	Upper Cover Assembly (S)	7-58
7-23	Upper Cover Assembly (L)	7-59
7-24	PSC Operator Panel	7-60
7-25	RS-232C Kit	7-61
7-26	RS-232C Interface Board, G8ESW	7-62
7-27	PSC Sheet Feeder (S)	7-63
7-28	PSC Sheet Feeder (L)	7-64
7-29	Main Unit (S) Assembly	7-66
7-30	Main Unit (L) Assembly	7-68
7-31	Unit Sub (S) Assembly	7-69
7-32	Unit Sub (L) Assembly	7-70
8-1	Interconnection Circuit Diagram	8-3
8-2	Connector Wiring Diagram	8-5
8-3	Circuit Diagram of Mother Board, G8FVLE	8-7
8-4	PSC POWER (C) Circuit Diagram - GRP313	8-25
8-5	Operator Panel Circuit Diagram	8-27
8-6	G8ESW PCB Circuit Diagram	8-29

Figures (cont'd)

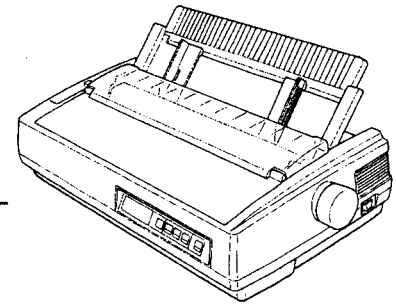
Figure	Title	Page
8-7	Parallel Interface Lines Diagram	8-31
8-8	Serial Interface Lines Diagram	8-34

Tables

Table	Title	Page
1-1	Input Voltage Requirements	1-6
1-2	Output Voltage Capacity	1-7
1-3	Specifications	1-26
3-1	Control Panel Summary in Offline State	3-2
3-2	Status Codes	3-3
3-3	Factory Memory Switch Settings	3-4
3-4	Secret Mode Switches	3-8
3-5	Print Style at Power Up	3-11
3-6	Language Character Set	3-12
3-7	Form Length	3-12
3-8	Paper Handling Mode	3-13
3-9	CR Function	3-13
3-10	Download Characters/Buffer Capacity	3-13
3-11	Parity Check	3-13
3-12	Baud Rate	3-14
3-13	Receive Buffer Length	3-14
3-14	Protocol	3-14
3-15	Horizontal Alignment (draft mode)	3-14
3-16	Horizontal Alignment (LQ mode)	3-15
3-17	Factory Spacing Correction (draft-10, HS-12, 80-dpi dot mode)	3-15
3-18	Factory Spacing Correction (draft-12, -15, LQ mode)	3-15
4-1	Lubrication Points for Mechanism Assembly	4-12
4-2	Lubrication Points for Optional Sheet Feeder	4-17
5-1	Significant Printer Malfunctions	5-2
7-1	Printer Consumables and Options	7-1
7-2	Recommended Spare Parts Kit (808-201162-GRP*-A)	7-2
7-3	Typical Codes for Attaching Hardware	7-5
8-1	Parallel Interface Lines Description	8-32
8-2	Serial Interface Lines Description	8-35

Abbreviations

ac/AC	alternating current
ASCII	American Standard Code for Information Interchange
C	centigrade
CG	character generator
cm	centimeter
CN	connector
cps	characters per second
CPU	central processing unit
dc/DC	direct current
DG	driver ground
EEPROM	electrically erasable programmable ROM
F	Fahrenheit
FET	field-effect transistor
FG	frame ground
Gnd	ground
HP	home position
HS	high speed
IC	integrated circuit
in.	inches
I/O	input/output
IPB	illustrated parts breakdown
KB	kilobytes
kg	kilogram
kHz	kilohertz
lbs	pounds
LED	light-emitting diode
LF	line feed
LQ	letter quality
LSI	large scale integration
MB	megabyte
MHz	megahertz
mm	millimeters
MPU	microprocessor unit
ms	millisecond
MTBF	mean time between failures
MTTR	mean time to repair
PCB	printed circuit board
PPS	pulses per second
PWM	pulse width modulation
RAM	random access memory
RH	relative humidity
ROM	read only memory
SG	signal ground
SP	spacing
SRAM	static RAM
SW	switch
V	volts
Vac	volts ac
μ	micro



Section 1

General Information

The Pinwriter® P22Q/P32Q series of dot matrix printers print 53 cps in letter-quality mode, 160 cps in draft-quality mode, and 192 cps in high speed mode. The P22Q is an 80-column printer and the P32Q is a 136-column printer. Figures 1-1 through 1-3 show the major components of the P22Q.

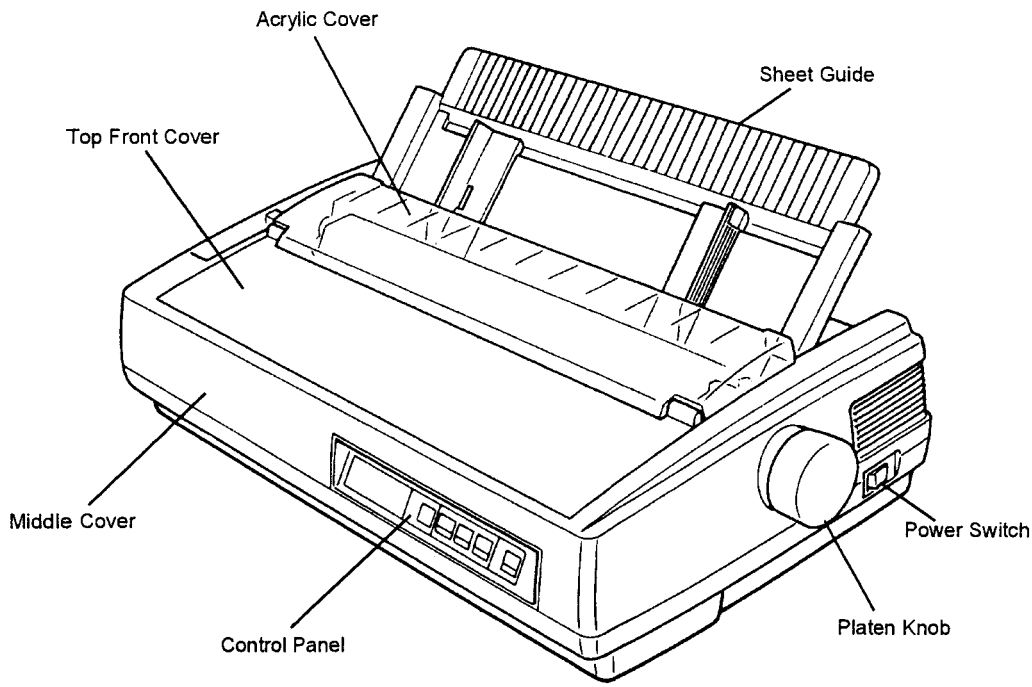


Figure 1-1 Front View

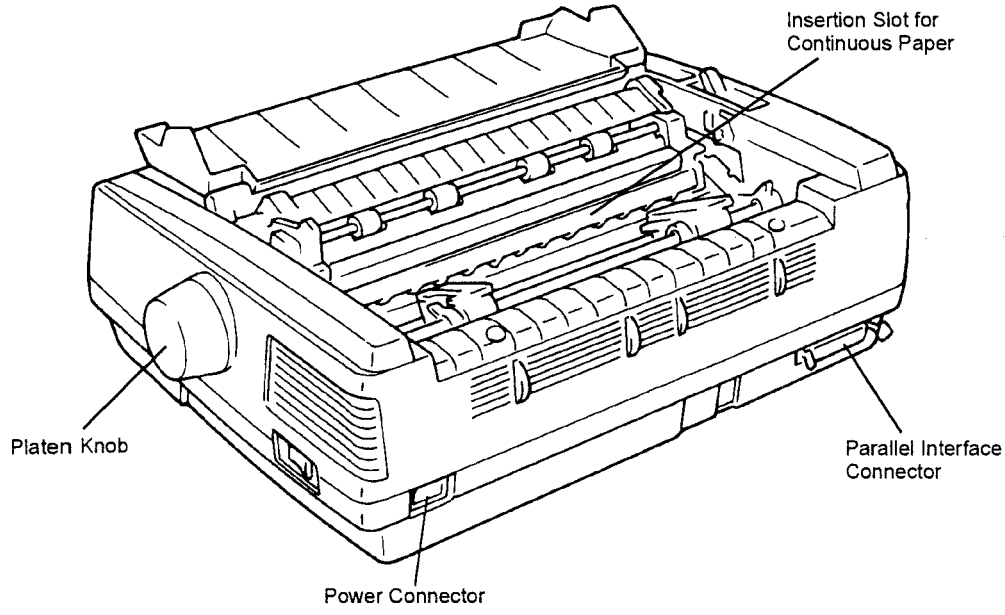


Figure 1-2 Rear View

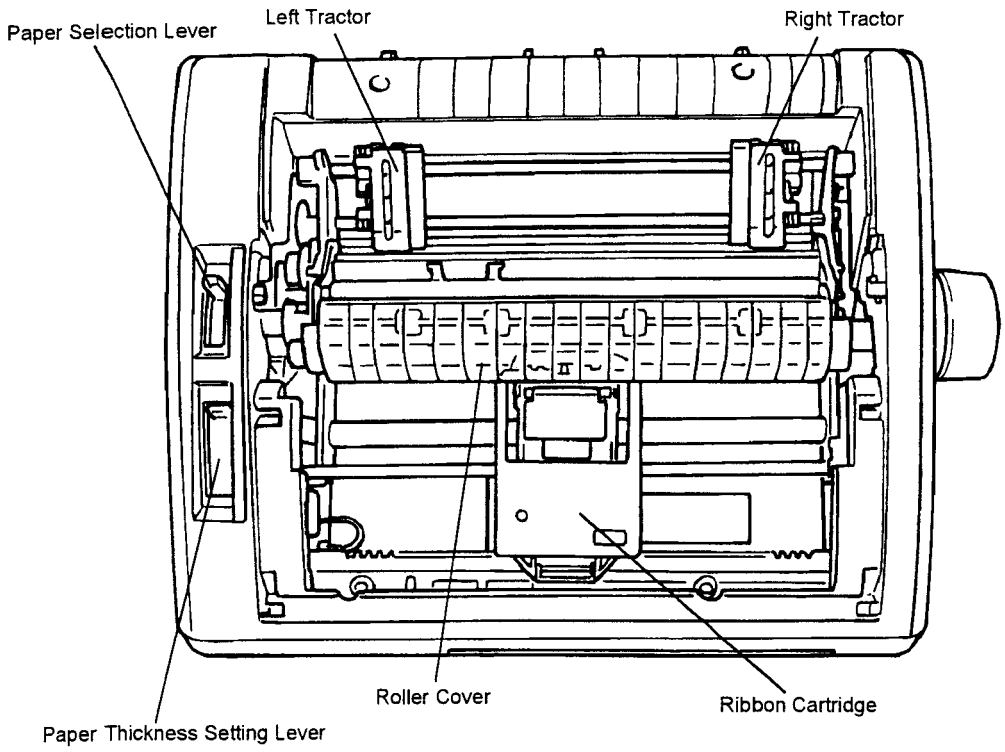


Figure 1-3 Inside View

Figure 1-4 shows the printer block diagram. The following subsections describe the major assemblies of the printer: system board, power supply, mechanism assembly, control panel, and options.

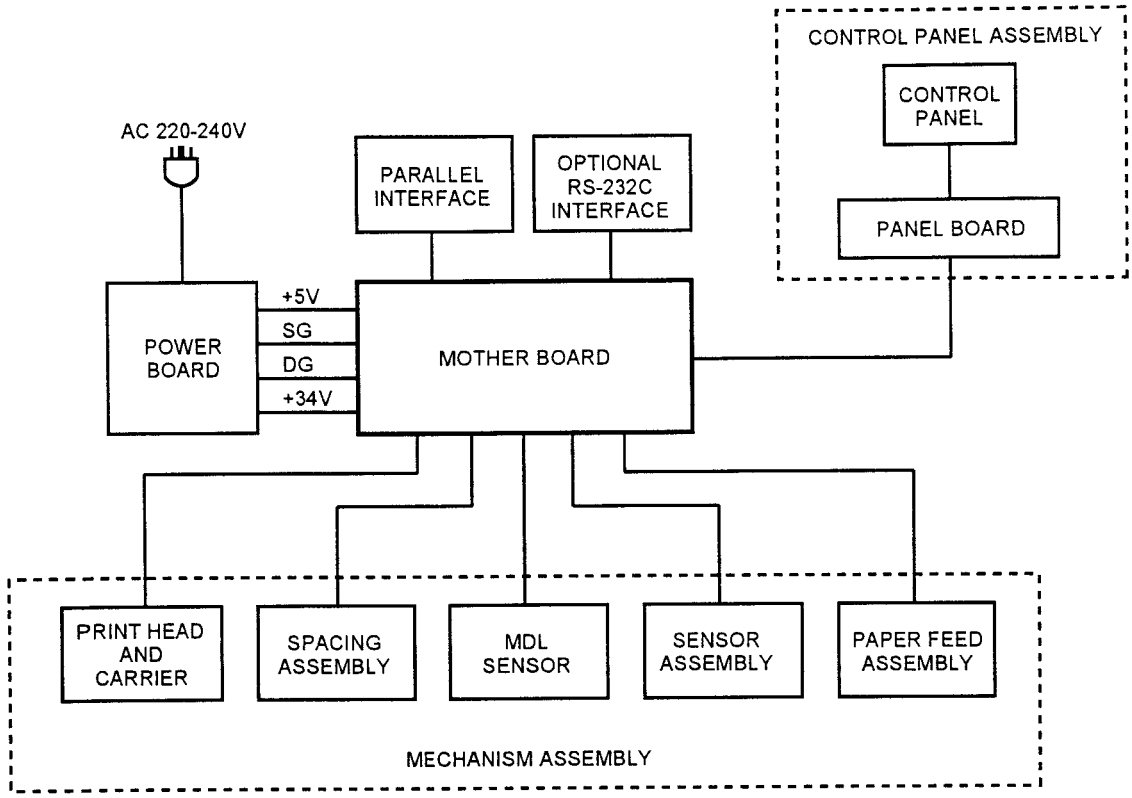


Figure 1-4 Printer Block Diagram

MOTHER BOARD

The mother board is the main circuit board of the printer. It consists of the microprocessor unit, memory, gate array, interface, and driver controller (see Figure 1-5).

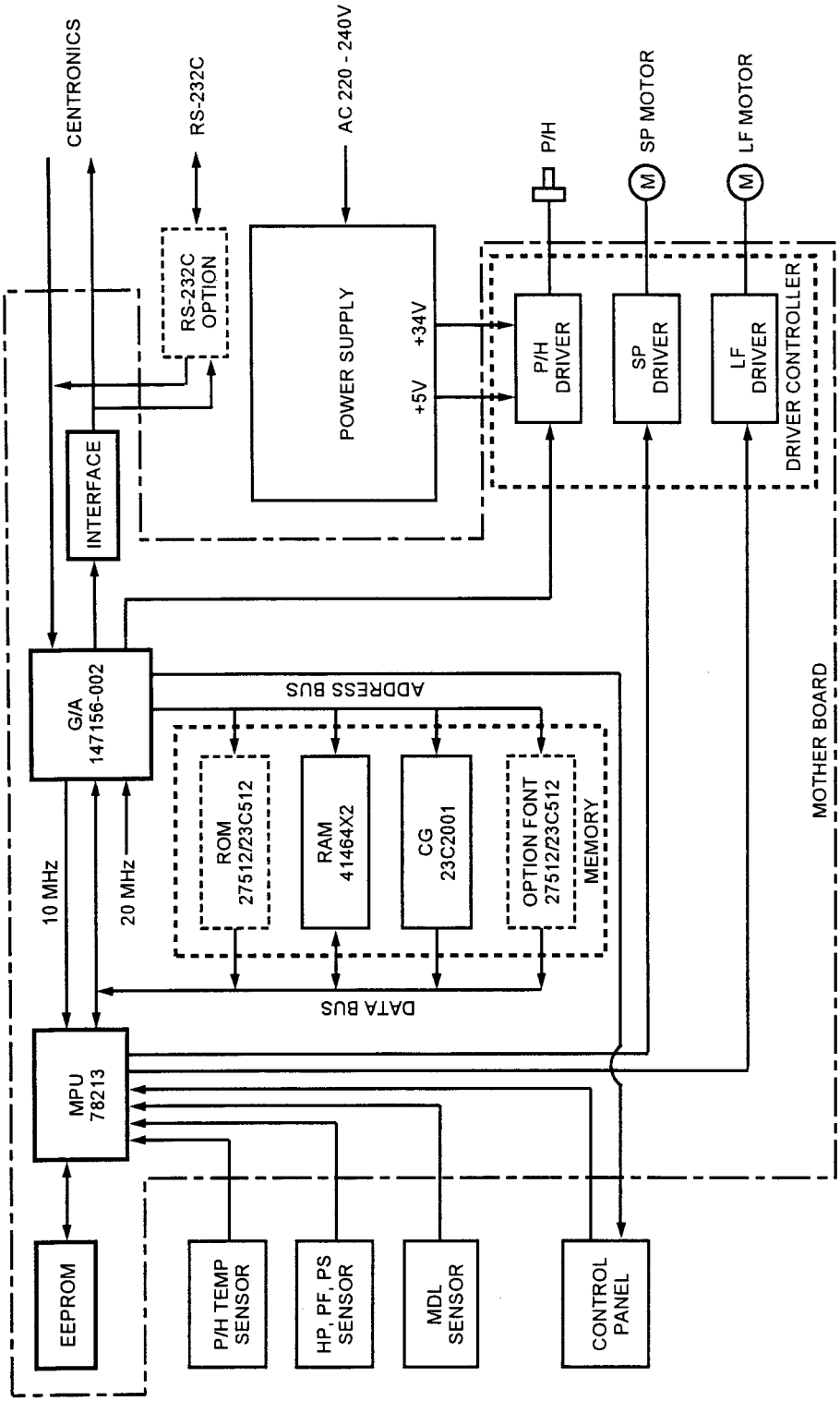


Figure 1-5 Mother Board Block Diagram

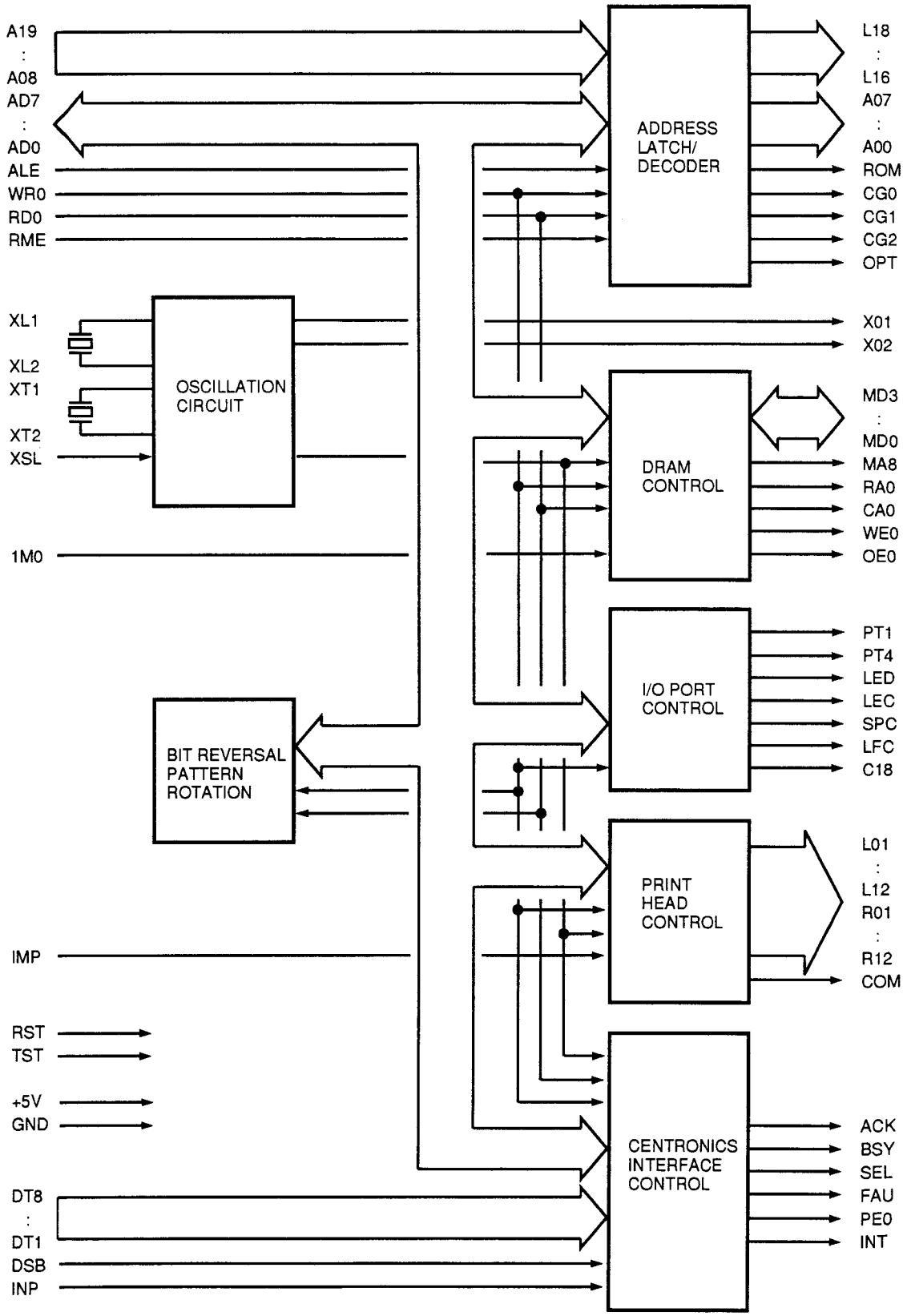


Figure 1-6 Gate Array Functional Block Diagram

Microprocessor Unit

The microprocessor unit (MPU) μPD78213 controls all printer functions. It controls the interface, memory, and gate array by reading paper status, print head temperature, homing sensor status, and control panel status.

Memory

Printer memory consists of image RAM, receive buffer RAM, program ROM, character generator ROM, and EEPROM. The image RAM enables high-speed operation of the printing, backspace, delete, and cancel functions. It stores the image to be printed in the form of a bit pattern. The 4-/8-KB receive buffer RAM stores the data received by the interface circuit.

The 64-KB program ROM (μPD27512) controls MPU operation. The 256-KB ROM contains the F/W and the resident character sets of the printer. The 1-K bit EEPROM (NMC9346) is used for mode settings: printing, forms, horizontal, alignment, and interface.

Gate Array

Gate array contains an address latch/decoder circuit, oscillation circuit, and control circuits for the DRAM, interface, I/O port, and print head (see Figure 1-6).

Driver Controller

The driver controller controls the carriage motor driver circuit and line feed motor driver circuit.

Interface

The printer has either the standard Centronics® parallel interface or the optional RS-232C serial interface. Parallel and serial interface pin assignments are listed in Section 8.

POWER BOARD

The Pinwriter power board type is the PSC POWER (C) PCB (808-891154-313-B).

The power board converts AC power into DC power and supplies DC voltage to the control circuit unit, the print head drive circuit and the motor drive circuit. The input voltages for these power boards are shown in Table 1-1.

Table 1-1 Input Voltage Requirements

POWER BOARD PCB	AC VOLTS	HZ	AMPS
PSC POWER (C) (808-891154-313-B)	220-240 V ±10%	50/60	250 V/2 A

The power board circuit supplies +5V to the control circuit and +34V to the drive circuit of the print head and the motor. The current capacity corresponding to each output voltage is shown in Table 1-2.

Table 1-2 Output Voltage Capacity

DC VOLTS	AMPS
5 V ±5%	2 A Max.
34 V ±7%	3.3 A Average

Figures 1-7 represents the block diagrams of each power board.

The power circuit is composed of the following 15 circuit blocks:

- AC input circuit
- Noise filter circuit
- Rush current suppression circuit
- Primary rectifying and smoothing circuit
- Starting circuit
- Drive circuit
- Inverter circuit
- Control circuit
- Overvoltage protection circuit
- Overcurrent protection circuit
- Surge killer circuit
- Secondary rectifying and smoothing circuit
- Dropper circuit for +5V output
- Feedback circuit
- Photocoupler

This power circuit performs self-oscillation by the ringing choke converter (RCC) system and attains stabilization by feeding back a +34V output voltage and controlling the primary current of the transformer contained in the inverter circuit.

Further, the transformer contained in the inverter circuit has two types of secondary windings, one being designed for the said +34V output, and the other for +6V metastable output.

The +5V output is obtained as a result of rectifying and smoothing the said +6V metastable output obtained supplementarily and reducing its voltage through the dropper circuit.

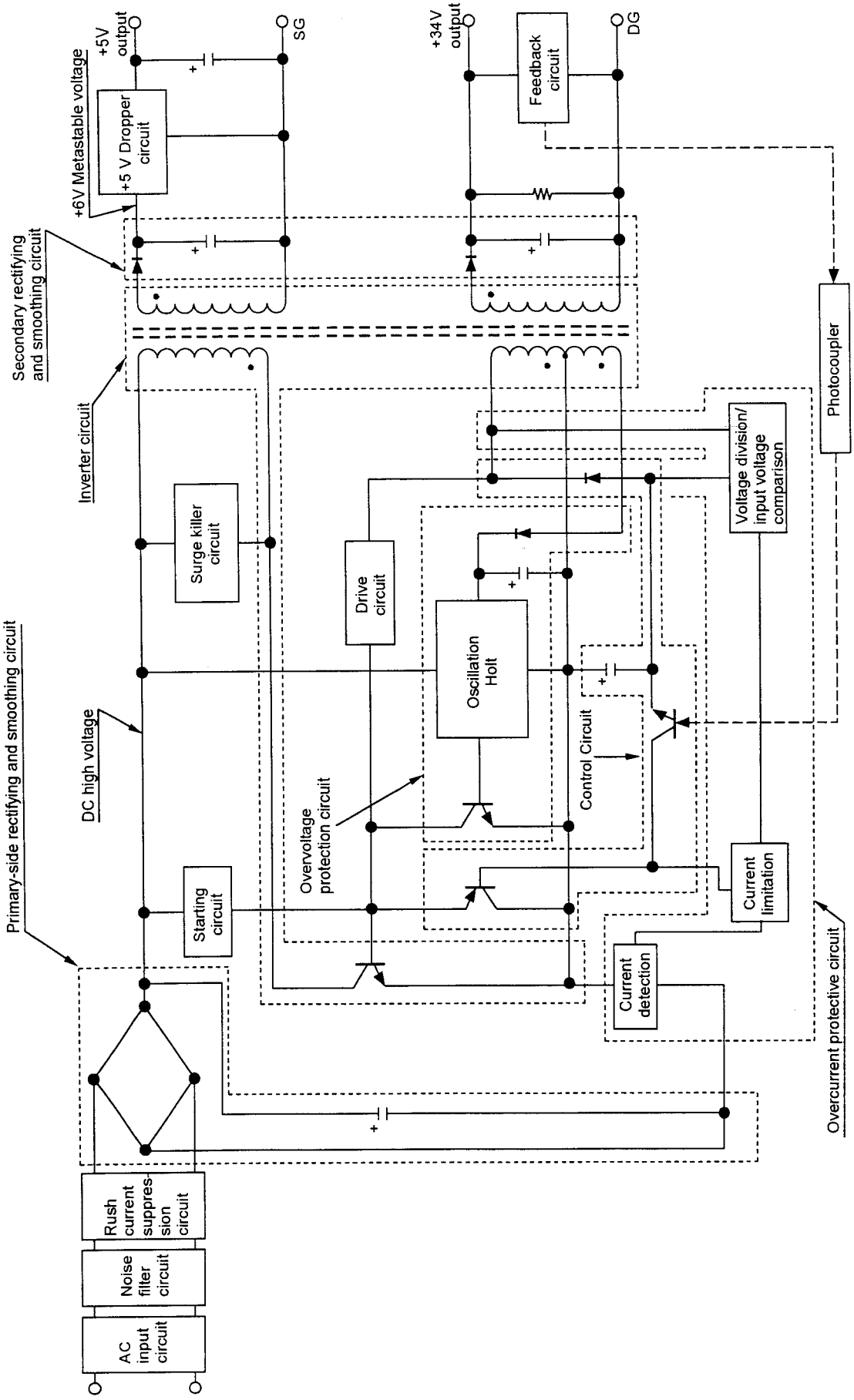


Figure 1-7 Block Diagram of PSC POWER (C), 808-891154-313-B

AC Input Circuit

This circuit consists of fuses and varistors. This circuit presents the input current from rising abnormally when the power board is damaged.

Noise Filter Circuit

This circuit is composed of capacitors and choke coils. It checks external high frequencies from entering the power circuit and blocks the high frequency noise generated inside the power circuit from flowing outside.

Rush Current Suppression Circuit

This circuit comprises a power thermistor connected in series to the AC line and suppresses inrush current at the time of power-on.

The power thermistor is an element which is characterized by the variation of its resistance value with the temperature. The circuit utilizes this characteristic. The thermistor suppresses the inrush current originated as power is switched on, because it has certain resistance value at its normal temperature. After that, the thermistor generates heat due to the current flowing through it and the resistance value, thereby lowering its resistance value, which allows an efficient operation of the power circuit.

Primary Rectifying and Smoothing Circuit

This circuit provides DC high voltage. For this, it performs full-wave rectification of the AC voltage deriving from the AC line and then charges it in an electrolytic capacitor for smoothing purpose.

The DC high voltage thus obtained is passed to the inverter circuit described further below, in which it is converted into a +34V constant voltage and a +6V metastable voltage.

Starting Circuit

This circuit, composed of resistance, drives the main transistor as power is switched on, so as to cause the self-oscillation to be initiated.

The circuit interconnects the DC high voltage part mentioned above and the base of the main transistor through a resistance. As the DC high voltage rises at power-on, current flows to the base of the main transistor, leading it to its ON state.

Drive Circuit

This circuit utilizes the voltage deriving from the supplementary winding, which is added to the transformer of the inverter circuit, for the purpose of supplying the base current designed to drive the main transistor.

The circuit consists of a resistance, capacitor and diode. As the voltage of the supplementary winding goes up, it supplies base current to the main transistor to turn it on. When the said voltage falls, the circuit turns off the transistor by withdrawing the base current.

Because the supplementary winding is wound in the same direction as the primary winding, its voltage rises once the main transistor comes on by the starting resistance, and sufficient base current is supplied to the main transistor until it reaches the saturation region.

Inverter Circuit

This is a circuit that converts the DC high voltage mentioned above into a +34V constant voltage and a +6V metastable voltage. It constitutes a core of this whole power circuit.

The transformer contained in the inverter circuit is connected to the DC high voltage part and is switched by the main transistor that oscillates by the RCC system. The said two voltages are obtained as output voltages consistent with the turn ratios of the secondary winding of the transformer.

The RCC system will be explained below.

The main transistor, which enters the saturation region after coming on by the starting resistance, supplies current to the primary winding of the transistor in order to cause the transformer core to increase the magnetic flux. However, this transistor, which works under the control of the control circuit described further below, is forcibly limited in current after having supplied certain primary current.

Meanwhile, there will be generated no primary-winding current because the secondary winding of the transformer is wound in the opposite direction and the current is suppressed by a rectifier. Therefore, the energy supplied to the primary winding, except for the portion that is derived as base current of the main transistor through the supplementary winding, is stored in the transformer core as magnetic flux, and this state is maintained as long as the flux increases.

When the primary current of the transformer is forcibly restricted, the voltage of the supplementary winding starts falling, because the magnetic flux of the transformer core is deterred from increasing. If the supplementary winding voltage begins to drop, the base current of the main transistor also falls synegically, prompting the main transistor to go off quickly.

When the main transistor goes off abruptly, each winding voltage of the transformer reverses, and the energy stored in the transformer core is released from the secondary winding through the secondary-side rectifier, and the energy is charged in the capacitor and converted into secondary-side voltages.

As the diminishment of magnetic flux ends at the completion of the release of magnetic flux from the transformer core, there also disappears the variation of magnetic flux, and each winding voltage of the transformer reverses again. As a result, the supplementary winding turns on the main transistor once again.

Repetition of the above process gives rise to spontaneous oscillation, allowing to forgo any other oscillation circuit. This method of oscillation is termed the RCC system, which is adopted in the power circuit being described herein.

Control Circuit

This circuit controls the main transistor with signals originating from the feedback circuit through the photocoupler described further below, so that the +34V output voltage will hold constant, and it thus controls the energy to be fed to the transformer.

The circuit makes use of the negative voltage deriving from the supplementary winding in order to exert control over the ON range of the main transistor by withdrawing that part of base current in excess of what is needed by the said transistor, according to the extent of ON of the photocoupler transistor.

Overvoltage Protection Circuit

This circuit serves to halt oscillation of the power supply in case the output voltage of the secondary winding rises abnormally because of unusual operation of the power supply motivated by breakage or other abnormality of a power circuit element (photocoupler, etc.).

In case the output voltage of the secondary winding goes up abnormally, it is necessarily accompanied by a rise in the supplementary winding voltage. This circuit utilizes such secondary phenomenon, i.e., when the supplementary voltage has increased in excess of a certain value, the base and the collector of the main transistor are short-circuited, thereby forcing the oscillation of the power supply to come to a halt.

On the other hand, this circuit uses the holding current of a thyristor. Therefore, once the power supply stops its oscillation, it cannot resume oscillation until the power switch is turned off and resetting done.

Overcurrent Protection Circuit

This circuit, which limits the primary winding current of the transformer, prevents excessive currents from flowing from the secondary side.

The circuit detects the current following through the transformer by the resistance connected in series to the emitter of the main transistor. In case a current in excessive of certain value is about to flow, the circuit forces a control transistor to come on, thus blocking the excessive current from circulating to the transformer.

Further, this circuit is so configured that it will be controlled by a low current value when the input AC voltage is high, based on the fact that the supplementary winding voltage responds to the input AC voltage. Consequently, it is designed in such a manner that the secondary-side output current will not assume a higher value than certain limit, irrespective of the value of the input AC voltage.

Surge Killer Circuit

When the primary current of the transformer is turned off, a very high rebound voltage is generated across the collector and the emitter of the main transistor. This circuit absorbs such high rebound voltages for protecting the main transistor.

Secondary Rectifying and Smoothing Circuit

This circuit applies, through a rectifier, half-wave rectification to the output voltage generated in the secondary winding of the transformer; charges it in an electrolytic capacitor for smoothing; and converts it into a +34V constant voltage and a +6V metastable voltage.

+5V Dropper Circuit

It reduces in voltage the +6V metastable voltage obtained supplementarily from the transformer, and delivers a constant voltage of +5V. This power circuit employs a three-terminal regulator.

Feedback Circuit

The feedback circuit of this power supply is located at the +34V output on the secondary-side. It is designed to send a signal to the primary-side control circuit to maintain the output voltage constant at 34V.

The circuit basically consists of a voltage comparison circuit (shunt regulator) and a voltage dividing resistance. The +34V output is divided by a resistance and fed to the voltage comparison circuit (shunt regulator), where increase/decrease of the +34V output voltage are compared with the reference voltage. The resultant difference is converted into a current, which is fed to the light-emitting diode of the photocoupler mentioned below.

Photocoupler

This circuit is designed to transfer feedback circuit signals of the secondary side already described above to the control circuit on the primary side.

This photocoupler is employed on both the primary and secondary sides of the power circuit in order to isolate the two sides electrically in conformity with overseas safety standards. Error of the +34V output, which is converted into a current by the feedback circuit, is passed to the primary-side control circuit through the photocoupler while it is electrically isolated.

MECHANISM ASSEMBLY

The mechanical assembly consists of the following subassemblies.

- Print Head Assembly
- Carrier Assembly
- Spacing Assembly
- Paper Feed Assembly
- Tractor Unit
- Sensor Assembly
- MDL Sensor Assembly
- Ribbon Cartridge

Print Head Assembly

The print head assembly is mounted on the carrier and moves bidirectionally at a speed of up to 216 cps. The print head assembly consists of the following components (see Figure 1-8).

- 24 Pins (print wires)
- 24 Corresponding Armatures, Magnets, and Solenoids
- Print Wire Guide
- 4 Guide Plates

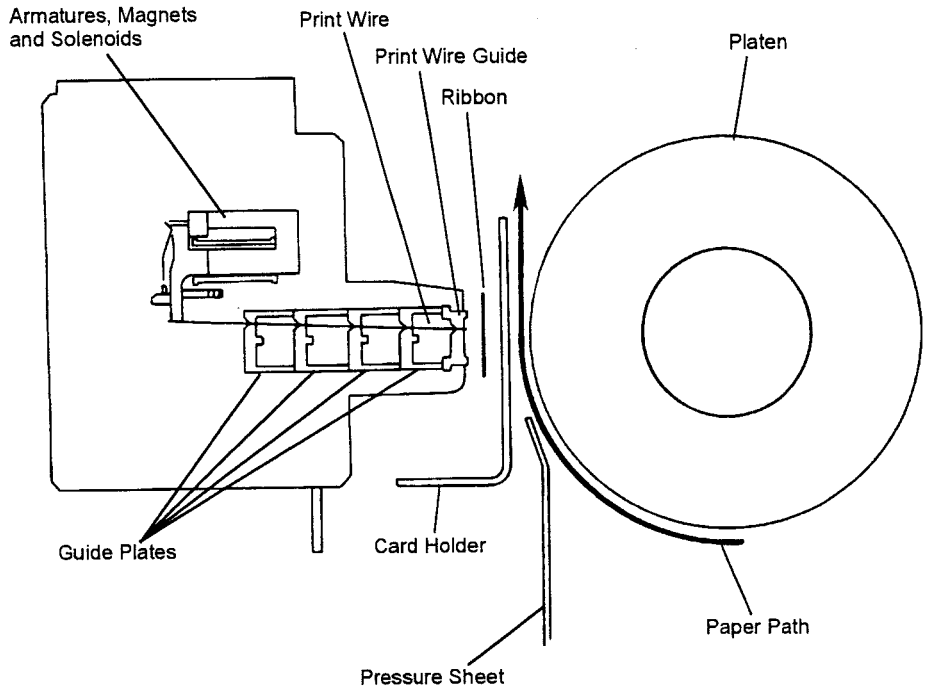


Figure 1-8 Print Head Assembly

The print wire guide, located at the tip of the print head, arranges the 24 pins in two staggered rows. The guide plate supports the pins at the center of the print head. During the printing process, a solenoid is energized and moves an armature. This motion causes the pin that corresponds to the armature to strike the ribbon, printing a dot on the paper. An attached spring returns the pin to its resting position. Pins strike the ribbon simultaneously to form sequential rows until the dots form a complete character on the paper.

Carrier Assembly

The carrier assembly consists of a card holder, print head and carrier (see Figure 1-9). The carrier rides on a guide shaft and slides along by the front stay.

The card holder steers the paper around the platen and stabilizes ribbon movement. The paper thickness setting lever located on the left end of the guide shaft allows you to adjust the gap between the print head and platen.

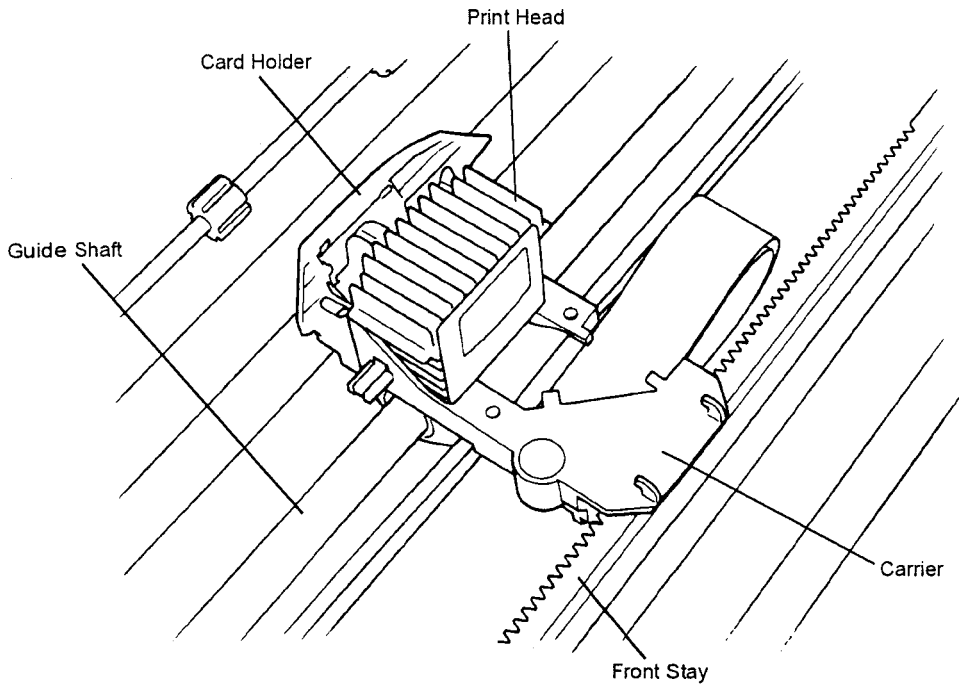


Figure 1-9 Carrier Assembly

The ribbon feed assembly feeds ribbon in one direction only by means of the torque gear (see Figure 1-10).

The torque gear rotates in one direction driven by idle gear engaging with the front stay and planetary gear, when the carrier is moving to left or right.

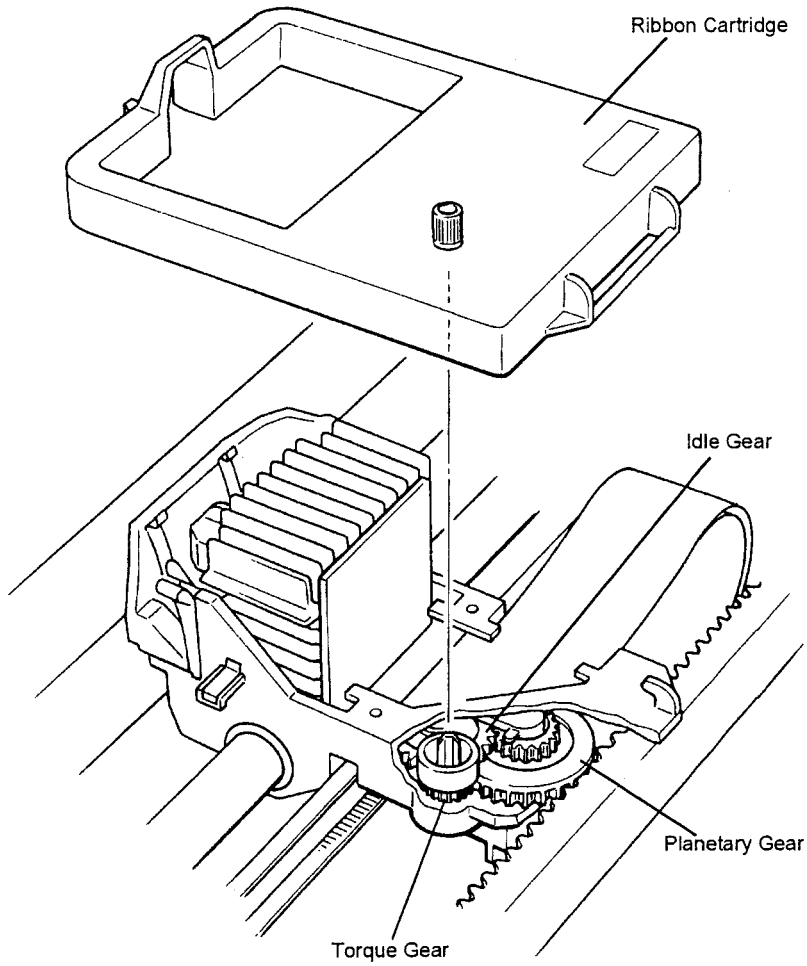


Figure 1-10 Ribbon Feed Assembly

Spacing Assembly

The spacing assembly consists of an SP motor, an SP motor gear, a gear pulley, a driven pulley assembly, and a timing belt (see Figure 1-11).

The carrier is fixed to the timing belt, and moves along the guide shaft and front stay according to the forward or reverse motion of the SP motor.

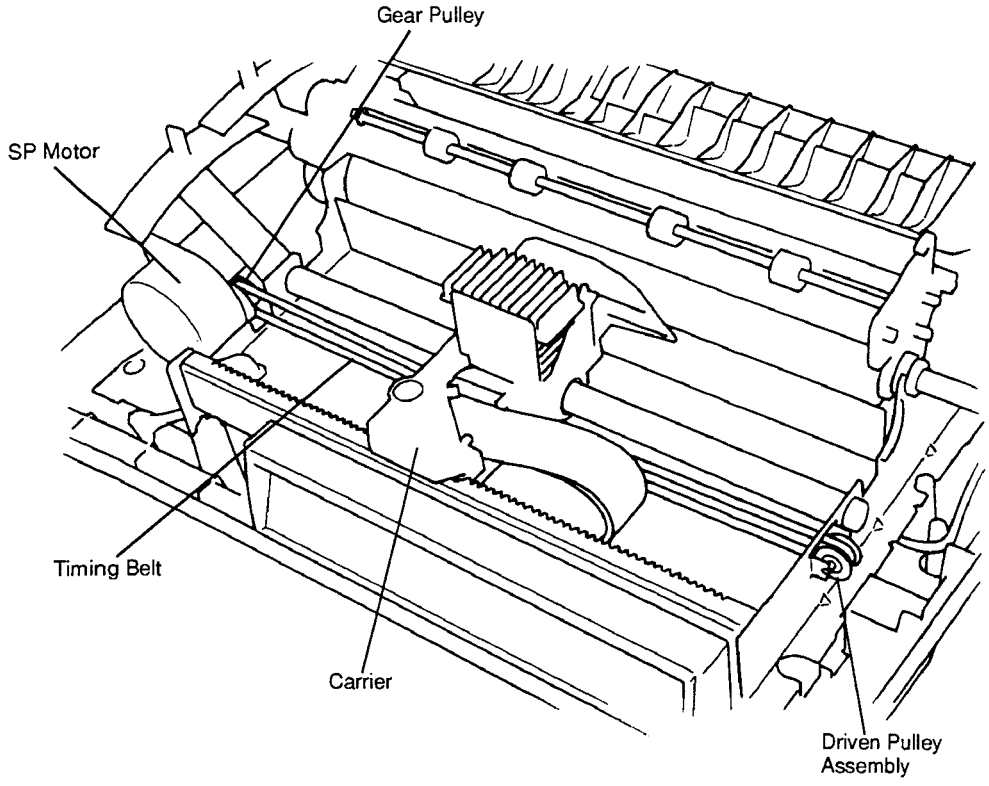


Figure 1-11 Spacing Assembly

Paper Feed Assembly

The paper feed assembly consists of an LF motor, motor bracket, and a gear cluster (see Figure 1-12). The rotary motion of the LF motor is transmitted to the platen or the tractor unit through the tractor gear. The paper selection lever selects the platen or tractor unit by changing the slide gear position. Figures 1-12 and 1-13 show gear transmission for each paper feed method.

One step of the motor equals 1/360-inch of paper movement. During tractor feed, paper feeds bidirectionally in the same 1/360-inch increments.

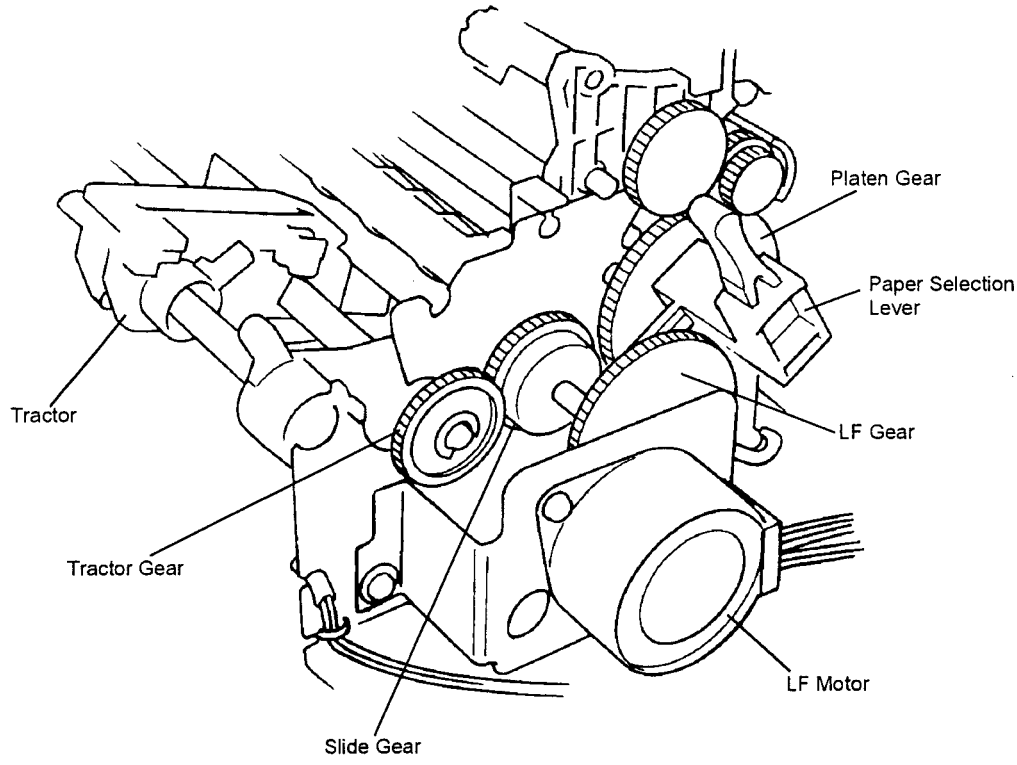


Figure 1-12 Gear Transmission for Platen Drive

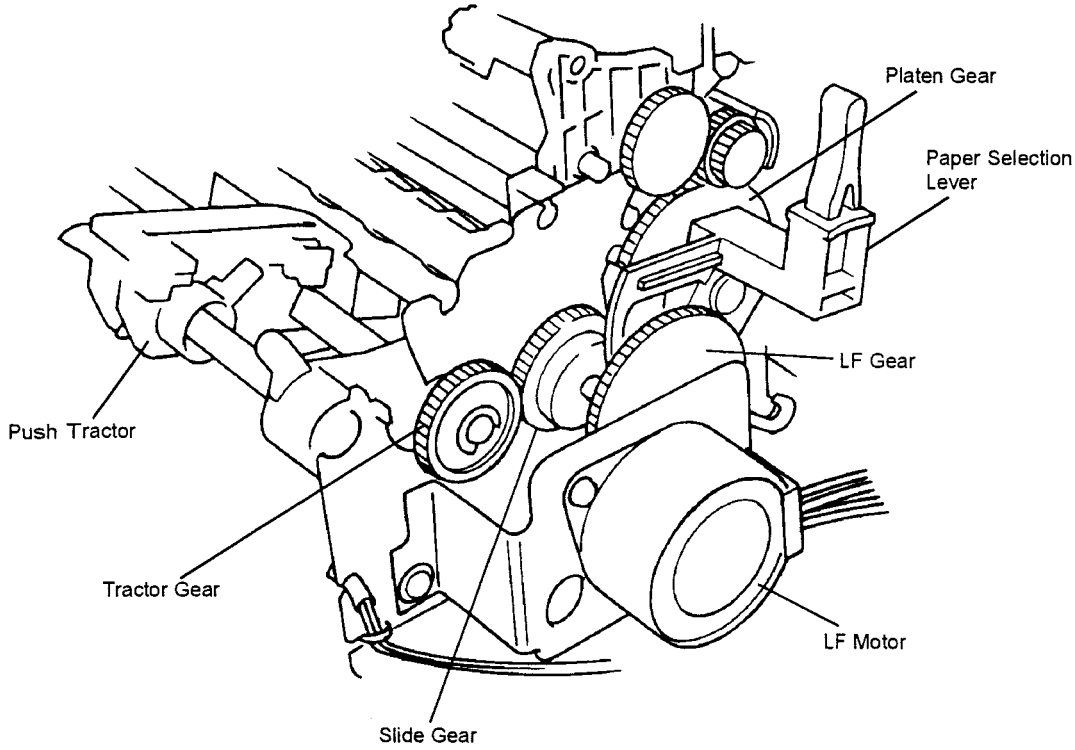


Figure 1-13 Gear Transmission for Push Tractor Drive

Tractor Unit

The tractor unit can be used as push tractor. The tractor unit is located under the sheet guide and tractor pushes the paper through the printer.

The following figures show the paper path through the printer.

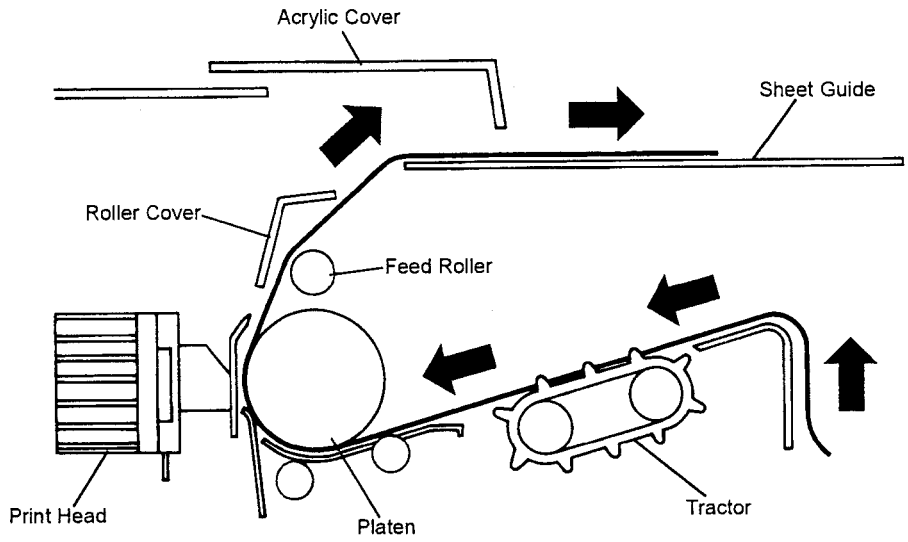


Figure 1-14 Push Tractor Paper Path

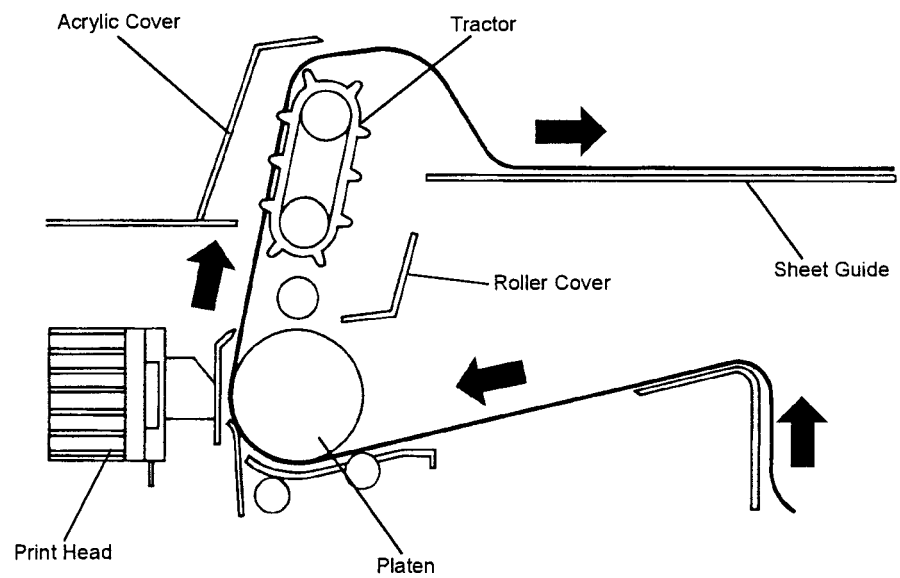


Figure 1-15 Pull Tractor Paper Path

Sensor Assembly

The sensor assembly consists of a

- home position sensor,
- print force sensor, and
- paper selection sensor.

The home position sensor is located on the main stay and it detects the carrier home position (see Figure 1-16). At power-on, the carrier automatically moves to the left until it reaches the home position sensor and then stops. If the carrier is already at the left of the home position sensor, it moves slightly to the right and then back to the home position.

The print force sensor is located beside the paper thickness setting lever (see Figure 1-17). When the paper thickness setting lever is in position 6 through 9, the microswitch is activated to reduce print speed by 1/3 to ensure satisfactory print quality on envelope.

The paper selection sensor is located under the release arm (see Figure 1-18). When the paper selection lever is in cut sheet position, the release arm pushes the switch, then printer detects the lever position.

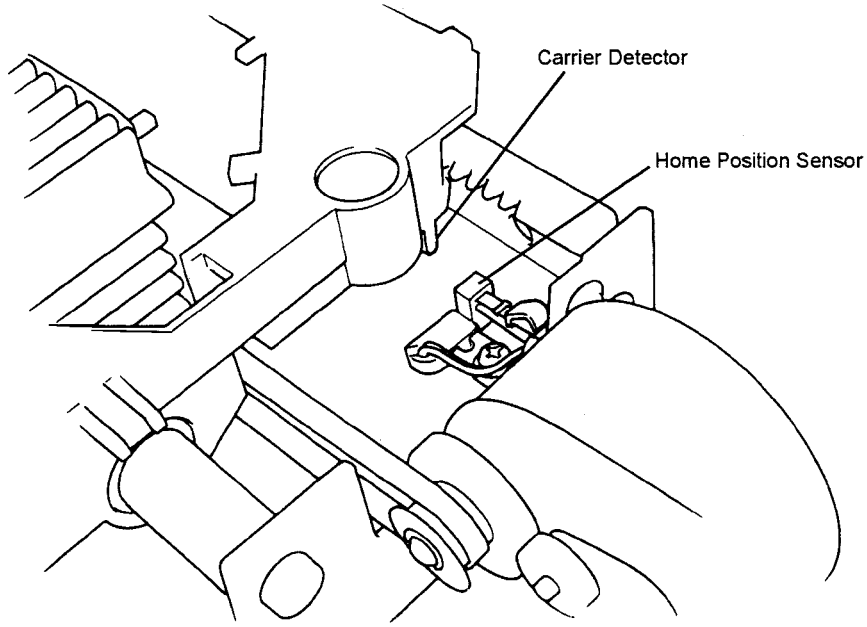


Figure 1-16 Home Position Sensor

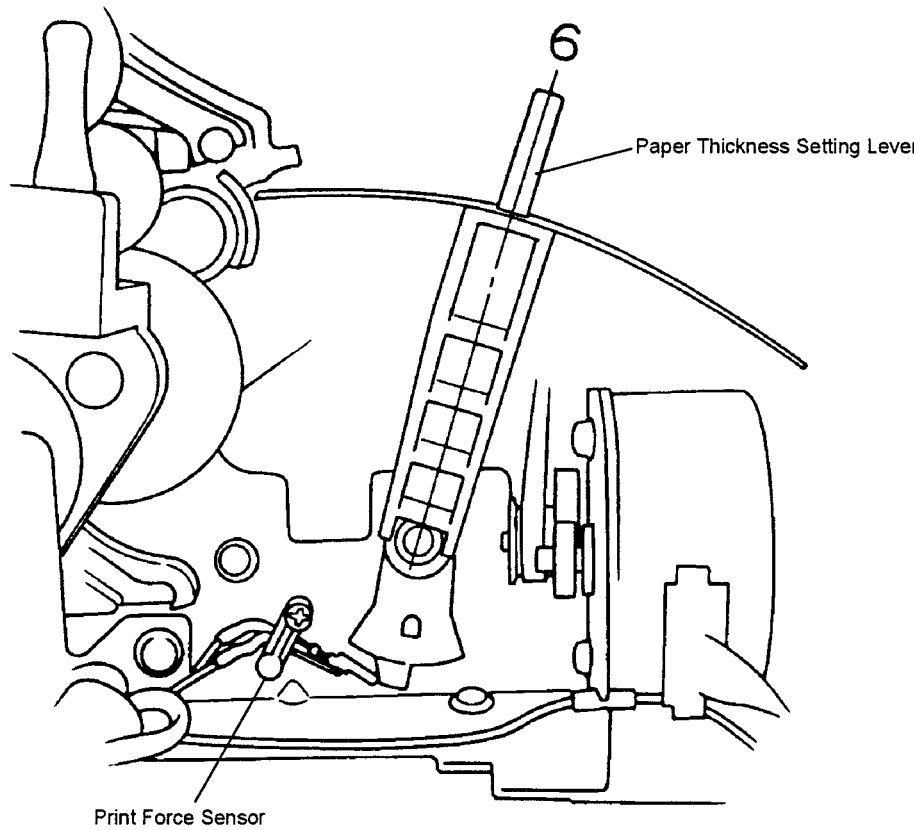


Figure 1-17 Print Force Sensor (Model P22Q)

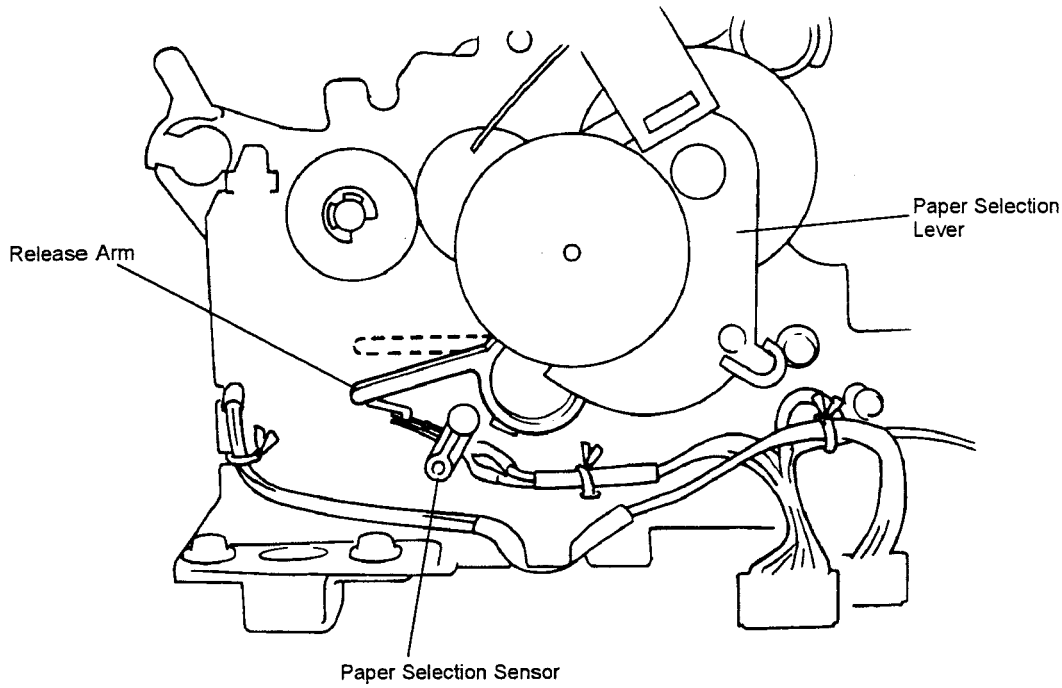


Figure 1-18 Paper Selection Sensor

MDL Sensor Assembly

The MDL sensor assembly consists of a photo sensor, a bracket, and actuator and MDL lever (see Figure 1-19). When the printer runs out of paper, the sensor lever moves away from the photo sensor. When the paper exists, the sensor lever blocks the photo sensor, creating a signal that indicates paper exists.

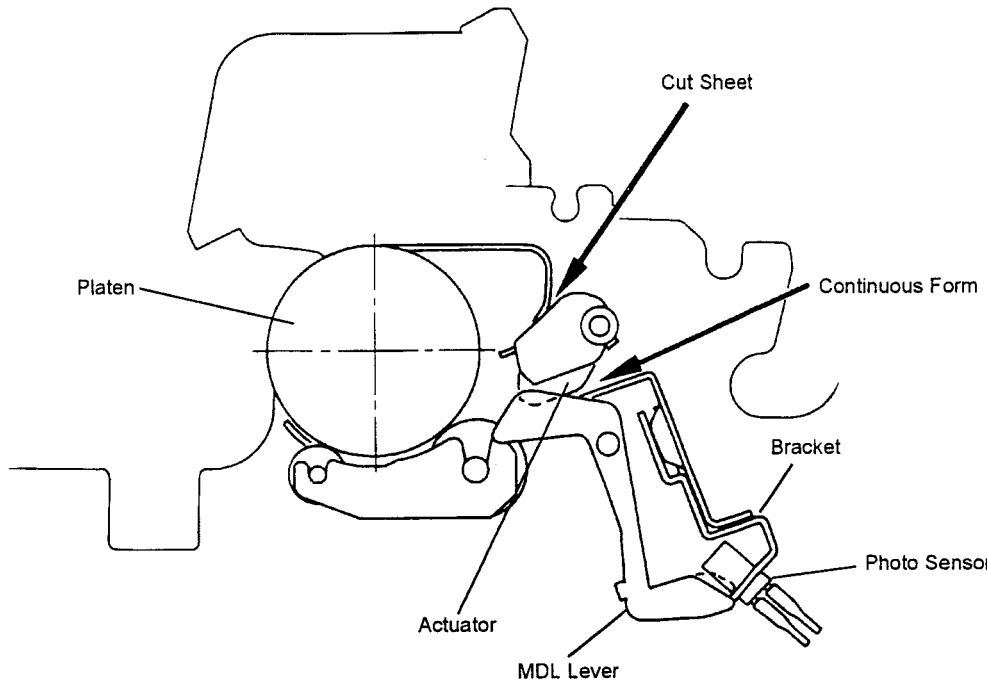


Figure 1-19 MDL Sensor Assembly

Ribbon Cartridge

The ribbon cartridge consists of a contiuous-loop ribbon, a feed gear, a transfer gear, an ink tip and an ink tank (see Figure 1-20).

This ribbon cartridge is reinking type, which is always supplied with ink from the ink tank during carriage movement.

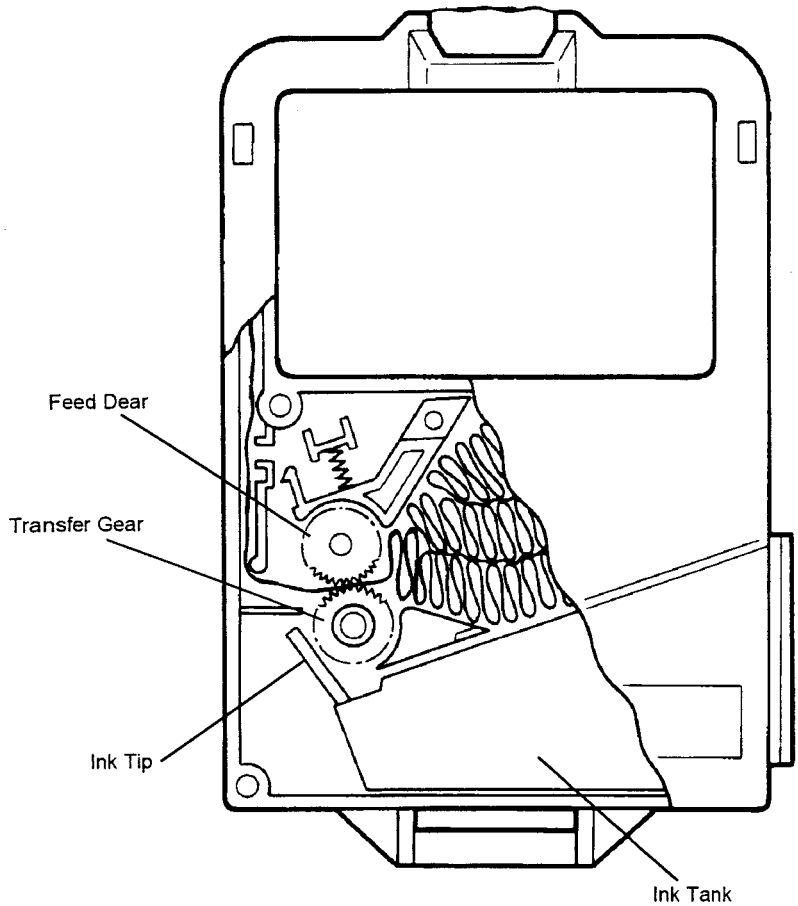


Figure 1-20 Ribbon Cartridge

CONTROL PANEL

The buttons and indicators on the control panel (see Figure 1-21) allow the user to set print parameters, perform indicated functions, and monitor printer status. The indicators flash to aid in diagnosing printer malfunctions. Section 3 discusses use of the control panel.

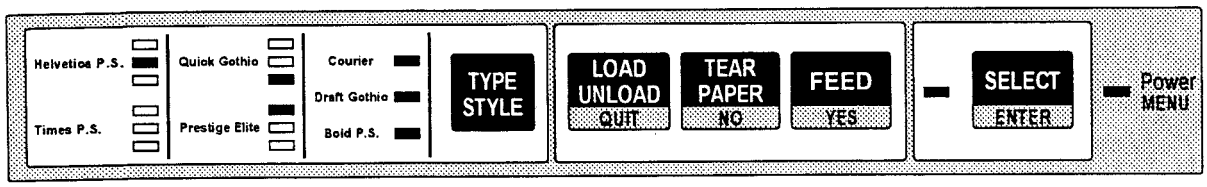


Figure 1-21 Control Panel

OPTIONAL RS-232C INTERFACE

The optional RS-232C interface converts serial data of the RS-232C to parallel data used by the mother board (see Figure 1-22). The main components of the interface are

- μPD78C11G-251 MPU, which controls the operation of the RS-232C interface and stores the program,
- μPD4364C RAM, which stores received data (8 KB),
- pseudo-Centronics® interface, which transfers data to the mother board,
- DC-DC converter, which converts +5 V from the power supply to ±12 V to be used by the RS-232C interface driver.

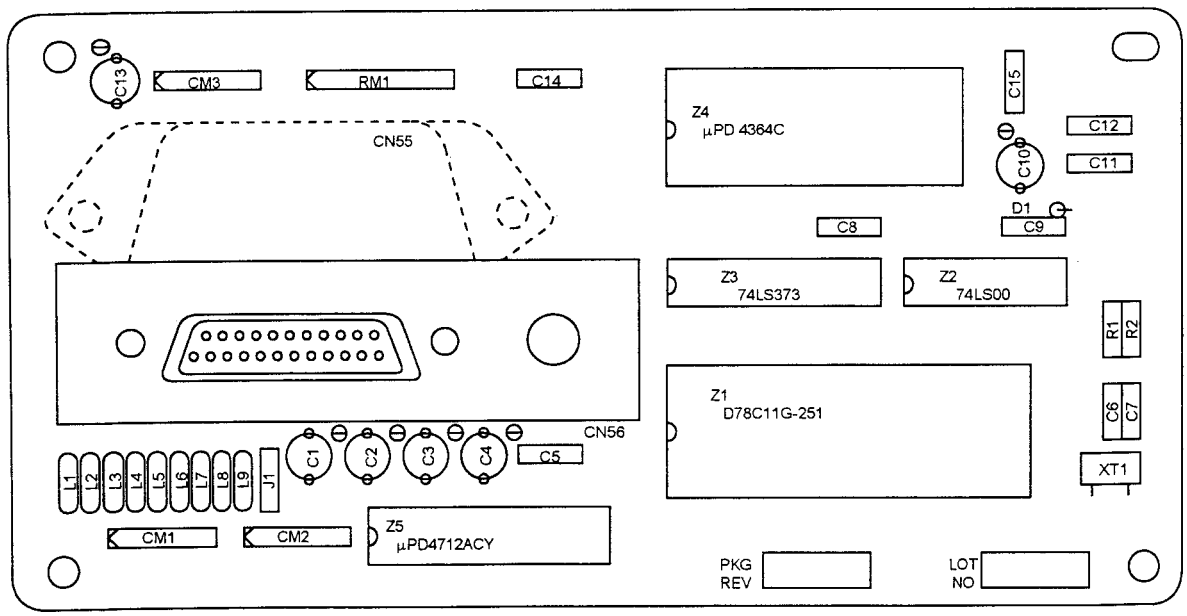


Figure 1-22 RS-232C Interface Board

Details of the serial interface are included in Section 8. Installation instructions for the serial interface are included with the serial interface kit.

SPECIFICATIONS

Table 1-3 provides the printer specifications.

Table 1-3 Specifications

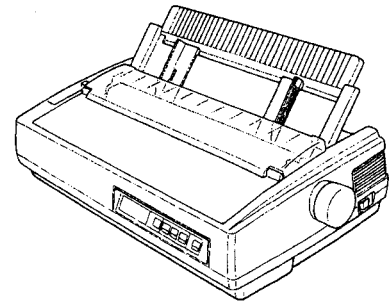
ITEM	SPECIFICATIONS
Print Method	Impact, 24-pin dot matrix, 2 x 12 staggered pin arrangement
Type Style	Courier Prestige Elite Bold PS Times PS Helvetica PS Quick Gothic Draft Gothic
Dot Size	0.0079 in (0.2mm)
Dot Spacing	Vertical - 180 or 360 dpi Horizontal - 60, 80, 90, 120, 180, 240, or 360 dpi
Vertical Line Spacing	6 or 8 lpi n/60-, n/180, or n/360-in. line spacing Slew rate - 2.5 in. per second
Resolution (dpi)	360 vertical x 360 horizontal
Receive Buffer	Parallel - 8 KB or 4 KB (with 96 download characters) or 0.5 KB (with 128 KB download characters) Serial - 8KB optional for 16 KB, 12 KB, or 8.5 KB total
Paper Handing	Single sheets and envelopes Sheet feeder (optional) Continuous sheet Push tractor - standard
Paper Width	
P22Q	With single sheet guide: 3.5 to 11.0 in. (88.9 to 279.4 mm) With sheet feeder: 6.5 to 8.5 in. (165.1 to 215.9 mm) With push or pull tractor: 3.5 to 10.0 in. (88.9 to 254.0 mm)
P32Q	With single sheet guide: 3.5 to 16.6 in. (88.9 to 421.6 mm) With sheet feeder: 6.5 to 14.3 in. (165.1 to 363.2 mm) With push or pull tractor: 3.5 to 16.0 in. (88.9 to 406.4 mm)
Dimensions	
P22Q	Width: 17.3 in. (440 mm) Depth: 13.5 in. (342 mm) Height: 6.3 in. (160 mm)
P32Q	Width: 22.9 in. (582 mm) Depth: 13.5 in. (342 mm) Height: 6.3 in. (160 mm)

Table 1-3 Specifications (cont'd)

ITEM	SPECIFICATIONS
Weight	
P22Q	18 lb (8.4 kg)
P32Q	25 lb (11.2 kg)
Interface	Industry-standard parallel—standard RS-232C serial—optional
Emulation	NEC Pinwriter Epson® LQ-850/1050
Power Consumption	96 W
BTU Rating	328
Power Requirements	220 to 240 Vac ±10%, 50/60 Hz
Environmental Conditions	Operating temperature — 41° to 100°F (5° to 38°C) Operating humidity — 30% to 85% RH (noncondensing) (45% to 70% RH with sheet feeder) Storage temperature — –13° to 140°F (–25° to 60°C) Storage humidity — 10% to 90% RH (noncondensing)
Print Head Life	100 million dots/wire
Reliability	MTBF — 4000 hours MTTR — 15 minutes
Acoustic Noise	55 dBA
Administrative Compliance	EN 60 950 : 1988 VDE 0871 (class B) SETI NEMKO

Section 2

Setup and Check



This section provides information on printer setup and check, including unpacking, assembly, and cable connections. Instructions on loading paper and running printer tests are included. The printer self-tests can be used as a confidence check of printer operation, before performing service or as a check after performing service.

UNIT SETUP

Printer operation and print quality are affected by the environment. To maintain the best conditions for trouble-free operation, observe the following environmental standards. Unit requirements and media specifications are in Section 1.

- Temperature: 41° to 100° F (5° to 38°C)
- Humidity: 30 to 85% RH
- Place the printer in well-ventilated, air-conditioned area.
- Make sure the printer fan ventilation holes are not blocked. A minimum of six inches is the recommended clearance from any wall for ventilation and accessibility.
- Do not expose the printer to direct sunlight or extreme changes in temperature.
- Do not expose the printer to excessive dust, moisture, vibration, shock, chemicals, or chemical vapors (such as ammonia vapors from blue print machines).
- Place the printer away from devices that generate strong magnetic fields such as electronic motors or transformers.

Unpacking

Place the carton on a sturdy surface, and carefully unpack the printer (see Figure 2-1). As the printer is unpacked, remove all shipping restraints (carrier restraint and tape on top front cover and acrylic cover). Locate each of the items shown in Figure 2-2. When packing the printer for shipping or storage, pack the removed items in reverse order.

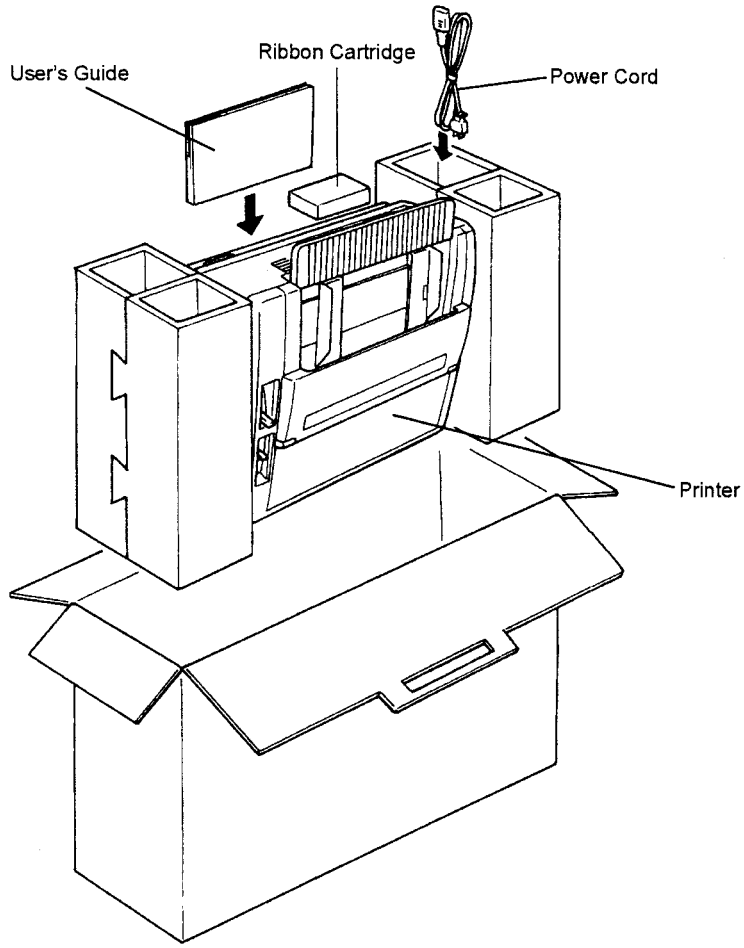


Figure 2-1 Printer Shipping Package

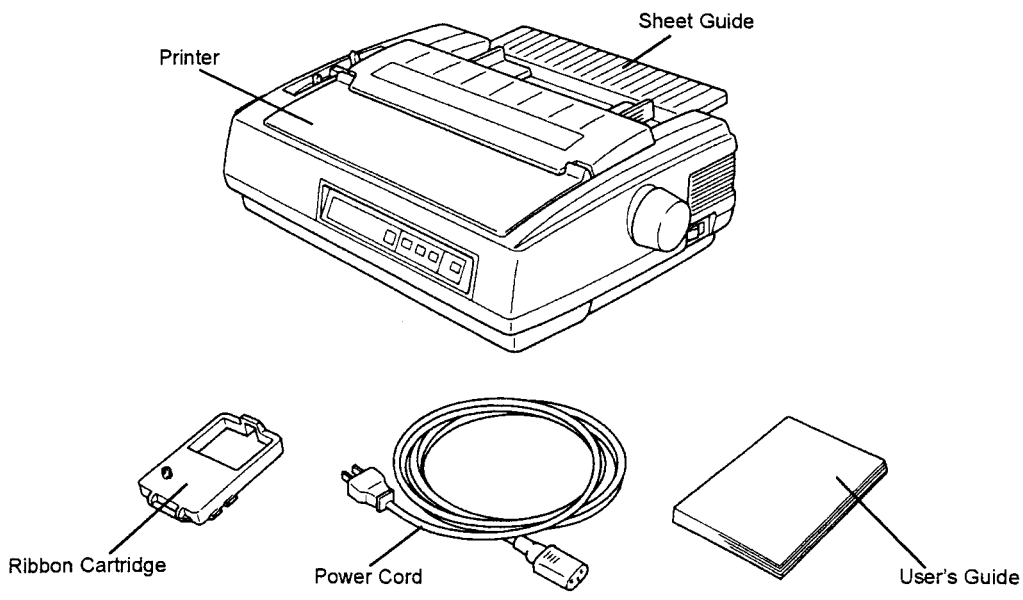


Figure 2-2 Printer and Accessories

Installing the Ribbon Cartridge

Install the ribbon cartridge as follows.

1. Set the paper thickness setting lever to the forward position.
2. Open the acrylic cover and top front covers
3. Open the roller cover, and position the print head carrier at the center of the printer (see Figure 2-3)
4. Turn the ribbon feed knob on the cartridge in the direction of the arrow to tighten the ribbon (see Figure 2-4).
5. Slide the bar on the bottom of the ribbon cartridge underneath the two hooks on the carrier (see Figure 2-5).
6. Gently press down the top of the ribbon cartridge to lock it in place around the print head. Turn the ribbon feed knob slightly to align the ribbon feed slots and pins.

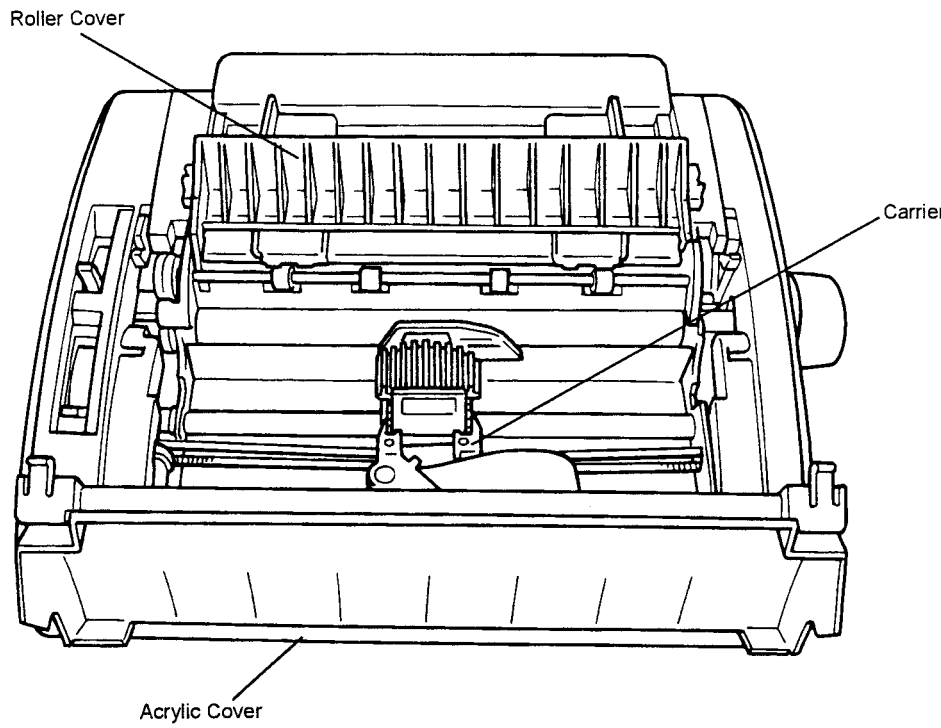


Figure 2-3 Print Head Carrier

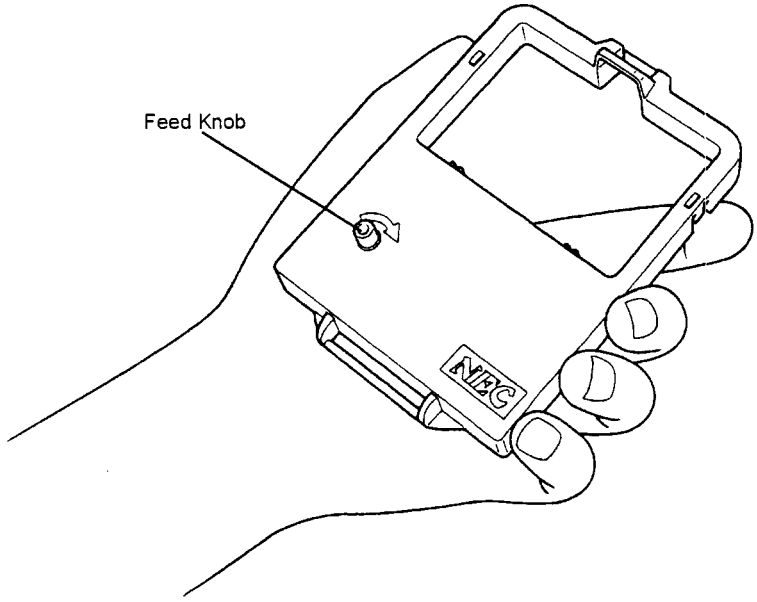


Figure 2-4 Ribbon Cartridge

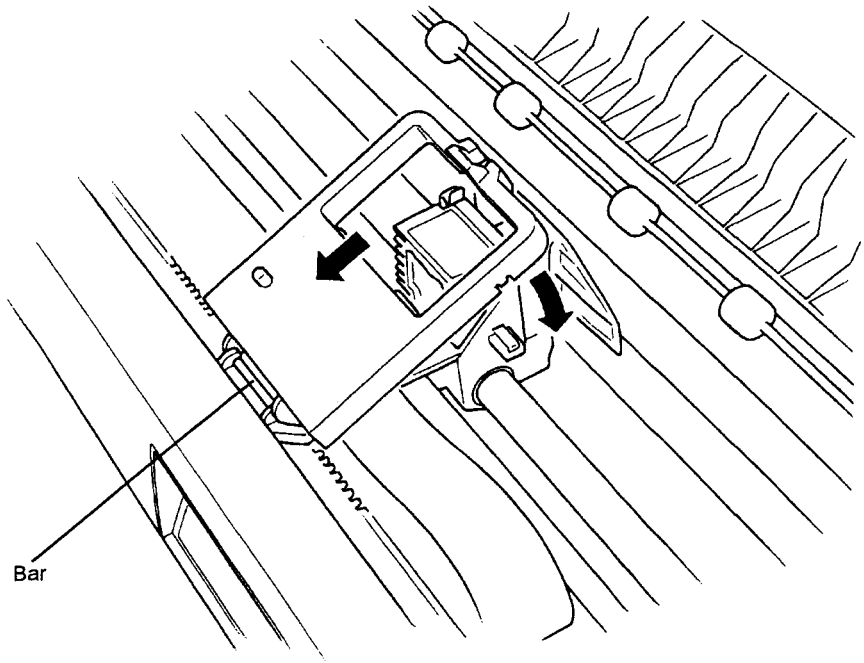


Figure 2-5 Cartridge Installation

Connecting the Power and Interface Cables

Connect the power and interface cables as follows.

1. Check that the ribbon cartridge is installed, and that the carrier restraint is removed.
2. Check that the printer's power switch is OFF.
3. Plug the power cable into the back of the printer (see Figure 2-6).
4. Plug the other end of the power cable into a properly grounded outlet.
5. Determine which interface (standard parallel or optional serial) is in use, then plug the appropriate interface cable into the back of the printer and computer (see Figures 2-7 and 2-8).
6. Check that both cables are properly seated and secured. If ground wire is attached to the interface cable, secure the wire to the ground screw on the printer.
7. Set the interface operating parameters (see Section 3).

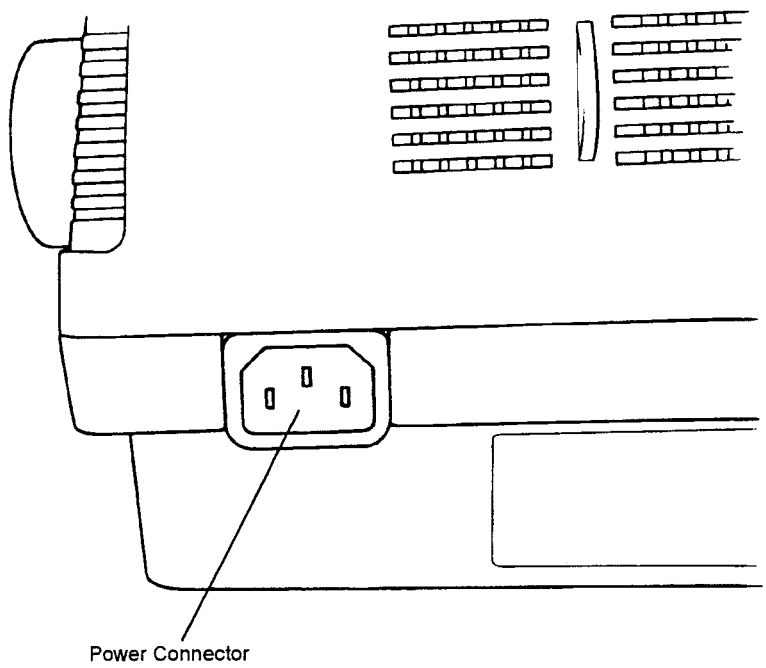


Figure 2-6 Power Connector

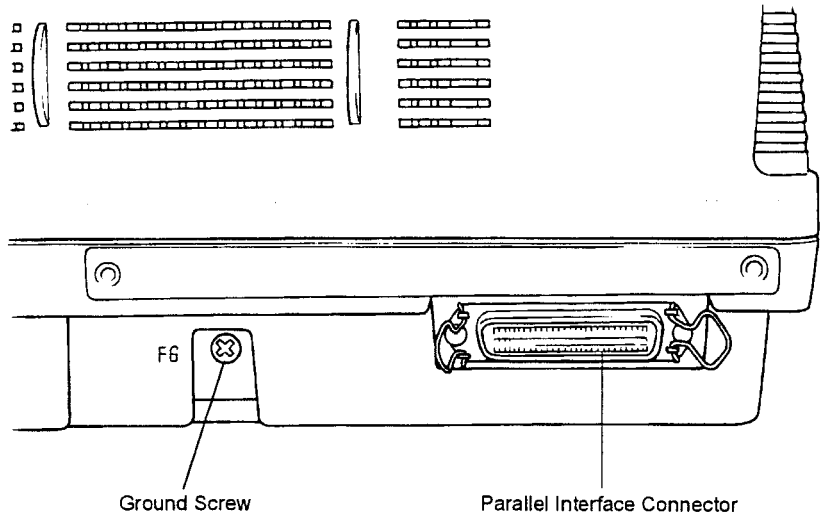


Figure 2-7 Parallel Interface Connector

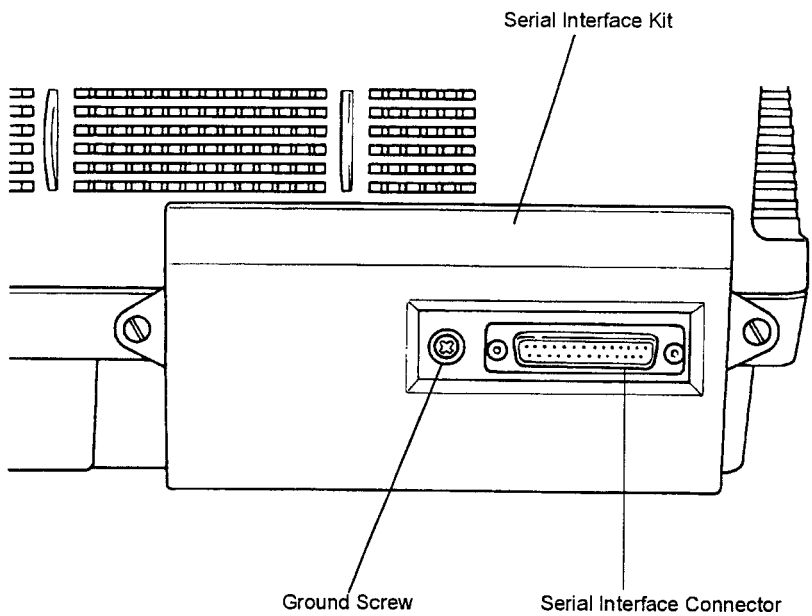


Figure 2-8 Serial Interface Connector

UNIT CHECK

The printer self-test exercises the electromechanical subsystems of the printer, checks operation of the print head wires, provides a visual check of print quality through printout of preprogrammed test patterns, and checks operation of the interface circuits through a hex dump. The test patterns are a repetitive display of the printable characters in the ASCII character set.

The self-test is designed as a confidence check of printer operation, and when successfully concluded indicates that the printer's subsystems are functioning properly.

Printer Self-Tests

The printer has a self-test that provide a quick check of printer operation. These include a power-on test, print quality and print head check, and hex dump for checking the interface circuits. The following paragraphs explain the tests. If any of the self-tests fail at any time or do not give the expected results, see Section 5 Troubleshooting.

POWER-ON TEST

The power-on test checks that power is available to the printer and there are no malfunctions in the power circuit. Perform the test as follows.

1. Check that the power switch is OFF, power cable connected, ribbon cartridge installed, print head restraint removed, and the roller cover closed.
2. Turn on the printer. The POWER indicator will light and the print head will home to the left. The lit indicator shows that is available to the printer.

   Homing of the print head indicates that the printer's electronics are operating. If the indicator does no light or the print head does not home, see Section 5 Troubleshooting.

   NOTE

   The SELECT indicator will blink until paper is loaded. For other indications, see Section 3 (status codes) and Section 5 (error codes).

3. Turn off the printer.

PRINT HEAD AND PRINT QUALITY CHECK

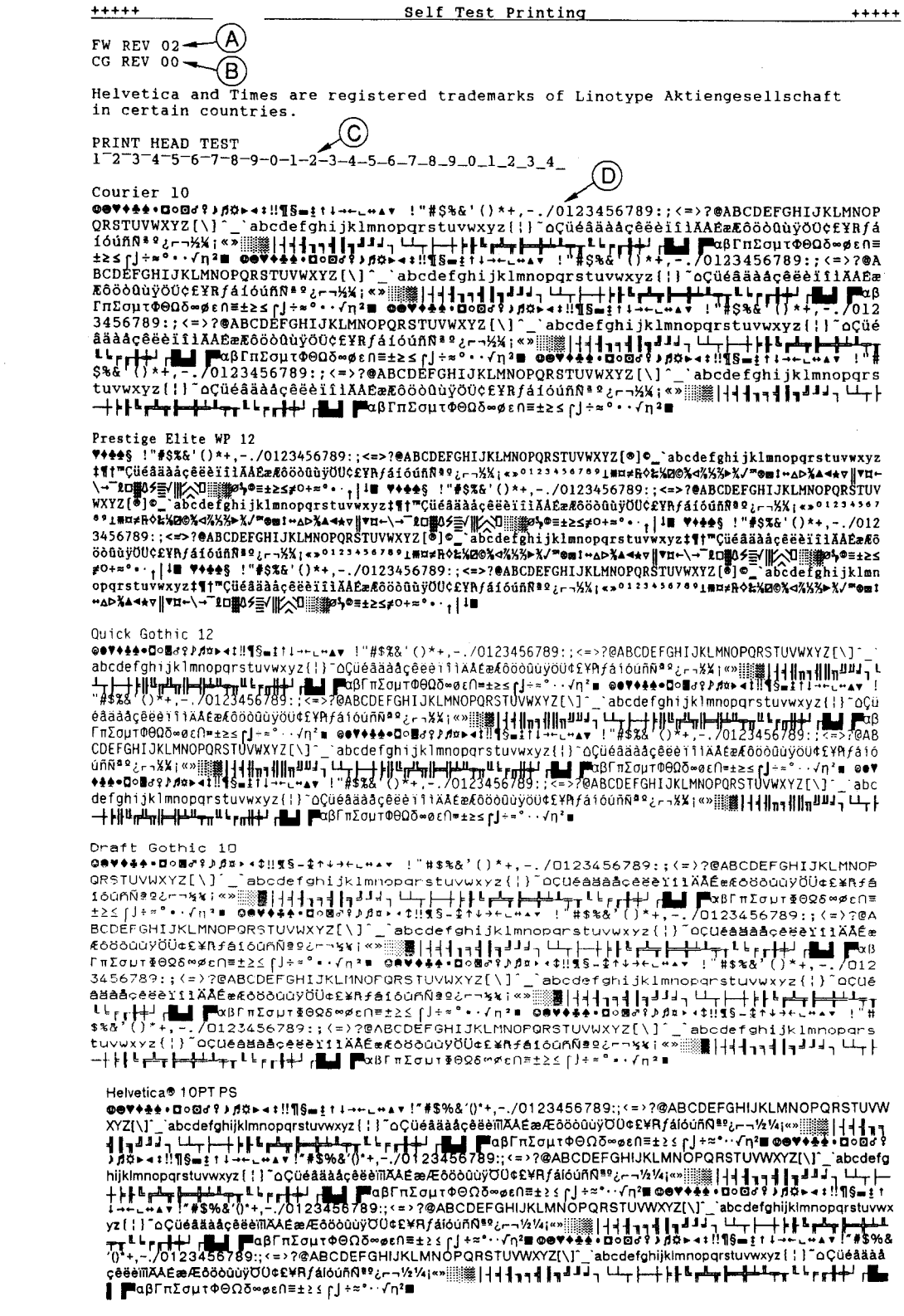
This self-test shows if the individual print wires are printing and demonstrates print quality by printing out a test pattern for visual observation. Figure 2-9 shows a partial sample test printout. Perform the test as follows:

1. Check that the power cable is connected, ribbon cartridge installed, full-sized continuous paper loaded, roller cover closed, and power switch OFF.
2. Press and hold down the **FEED** button while turning on the printer. Release the **FEED** button when printing starts.

   If printing does not start, turn off the printer, check that power is available, and repeat the test. If printing still does not start, see Section 5 Troubleshooting.
3. Stop the self-test at any time by turning off power. The self-test can also be turned off by pressing the **SELECT** button. However, the test will resume when the **SELECT** button is again pressed.
4. Visually check the first sheet. The first two lines identify, firmware revision level, and character generator revision level.

   The print head test line shows a series of printed numbers separated by dashes. Each number represents one pin of the 24-pin print head. The dash after each number shows if the wire is printing or not: no dash indicates the pin is no printing. If a pin(s) is not printing, see Section 5 Troubleshooting (Figure 5-6).
5. Check the print quality of the test pattern. If print is too light or dark, adjust the paper thickness setting lever. If there are missing dots, broken characters or other problems, see Section 5 Troubleshooting.

If the print head test and test pattern printed out correctly, all subsystems are operating properly. If the test failed, see Section 5 Troubleshooting.



Ⓐ Firmware Revision Level

Ⓑ Character Generator Revision Level

Ⓒ Print Head Test Pattern

Ⓓ Test Pattern

Figure 2-9 Self-Test Printout

HEX DUMP

The hex dump verifies that the interface circuits are operating correctly. The hex dump is also useful for program debugging. This feature makes it easy for experienced users to find the cause of printer problems.

The hex dump prints out, in hexadecimal notation, every ASCII character (including control characters) sent to the printer. The firmware revision and character generator revision are also printed out at the top of the page.

To perform a hex dump, follow these steps.

1. Check that the power and interface cables are connected, paper loaded, and the power switch is on. Check that the printer is set for parallel or optional serial interface operation (see Section 3).
2. Using a word processor or other software package, create several lines of text that include the feature which is giving you problems. In this example, we will use the underlining function.
3. Exit the software package and turn off the printer power.
4. Press the **LOAD/UNLOAD** button while turning on the printer.
5. Enter the software package and execute the printout function. The computer now sends your lines of text to the printer, which in turn prints out the data in hexadecimal form. Check the hex codes to see if the underlining code appears.

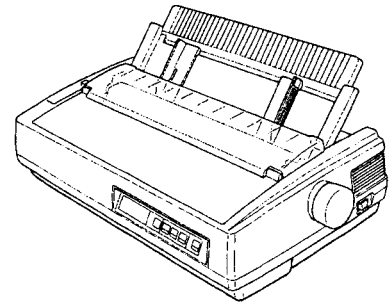
   Try to find the underlining codes (hexadecimal codes: 1B 2D) among the hex codes in the printout (see Figure 2-10).
6. If the underlining hex code appears, the software is doing its job and the problem is the printer.

   If the underlining hex code does not appear, you have a software problem and should see your software dealer.

```
FW REV 02
CG REV 01

1B 2D 02 20 21 22 23 24 25 26 27 28 29 2A 2B 2C     .-. !"#$%&'()*+,
2D 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C     -./0123456789:;<
3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C     =>?@ABCDEFGHIJKL
4D 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B 5C     MNOPQRSTUVWXYZ[\
5D 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B 6C     ]^_`abcdefghijkl
6D 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B 7C     mnopqrstuvwxyz{|
7D 7E 0D 0A                                        }~..
```

Figure 2-10 Sample Hex Dump



Section 3

Operation

This section identifies the control panel buttons, status messages, menus, and memory switch settings. The control panel is located at the front of the printer. Menus are viewed through a printout where memory switch settings can be examined and then changed.

CONTROLS AND INDICATORS

Figure 3-1 shows the printer control panel. Explanations of each button and indicator follow.

Table 3-1 summarizes control panel operation.

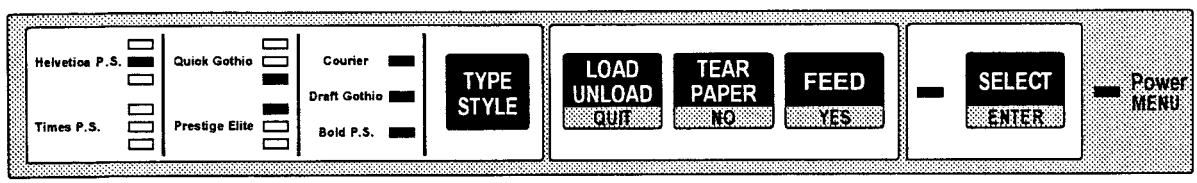


Figure 3-1 Control Panel

POWER Indicator — This LED is lit whenever the printer power switch is ON.

SELECT Button — Used to select and deselect the printer for printing. **SELECT** is also used in combination with Power to enter the menu mode with a current settings printout.

SELECT Indicator — This LED is lit whenever the printer is in select state.

FEED Button — Used to advance the paper either one line (press the button once) or form feed (press the button and hold it for one second). **FEED** is also used in combination with Power to start the self-test.

TEAR PAPER Button — Used to advance the paper to tear position.

LOAD/UNLOAD Button — Used to automatically load single or continuous sheets to the first print position. Also used to back continuous sheets off the platen (park continuous paper) while using single sheets. **LOAD/UNLOAD** is also used in combination with Power switch to enter the hex dump mode.

TYPE STYLE Button— Used to select type style.

TYPE STYLE LEDs — Indicates the selected type style.

Table 3-1 Control Panel Summary in Offline State

FUNCTION	BUTTON OPERATION
Select/Deselect Printer	**SELECT**
Enter Short-Adjust Mode	**SELECT + FEED**
Change Print Head Centering Position	**SELECT + LOAD/UNLOAD**
Enter Menu Mode with Current Setting Printout	**SELECT** + Power Switch
Advance Paper	**FEED**
Start Self Test	**FEED** + Power Switch
Enter Menu Mode	**FEED + SELECT** + Power Switch
Advance Paper to Tear Position	**TEAR PAPER**
Load Continuous or Single Sheet	**LOAD/UNLOAD**
Park Continuous Paper	**LOAD/UNLOAD**
Enter Hex Dump Mode	**LOAD/UNLOAD** + Power Switch
Change Type Style	**TYPE STYLE**

STATUS CODES

The control panel lamps indicate the status and error codes as patterns of lamps that are lit, not lit, or flashing. Table 3-2 describes the status indicators during printer operations. See Section 5 for error indications.

Table 3-2 Status Codes

LAMP INDICATION	MEANING	CORRECTIVE ACTION
SELECT lamp blinks.	Paper empty.	Load Paper and press **SELECT**.
TYPE STYLE lamp blinks one a second.	Print head is overheated.	Printing resumes automatically when print head cools.
TYPE STYLE lamp blinks twice a second.	Copy mode.	Printer exits this mode when paper thickness setting lever is set at 6 through 9.
SELECT and Courier LED, Draft Gothic LED, Bold P.S. LED lamps blink simultaneously.	Short-adjust mode.	Printer exits this mode when press **SELECT**.
SELECT and Draft Gothic LED lamps blink alternately. (2 Hz)	Paper jam or paper loading error with sheet feeder.	Remove jammed paper and press **SELECT**.
SELECT and Courier LED lamps blink alternately. (2 Hz)	Serial interface buffer overflow.	Press **SELECT**. Check the communication protocol. If necessary, change the communication protocol by changing memory switch setting.
SELECT and Bold P.S. LED lamps blink alternately. (2 Hz)	Downloading error: printer is unable to accept downloaded data.	Press **SELECT**, and change buffer capacity to 4KB or 0.5KB by changing memory switch setting.
SELECT (4 Hz) and TYPESTYLE (1 Hz) blink alternately.	Machine error exists.	See Table 5-1 "Significant Errors."
SELECT lamp blinks (4 Hz) and TYPE STYLE lit.	Machine error exists.	See Table 5-1 "Significant Errors."

MENU MODE

Use the menu mode to access the memory switches. The memory switches allow you to control the printer's four functional categories (main menu): print mode, forms, interface, and horizontal alignment.

The memory switches are set at the factory for the default conditions in each of the four main menus (see Table 3-3). Detailed information on the modes is contained in the printer User's Guide.

By using the menu mode, you'll be able to quickly change settings with the preprogrammed selection routine. You'll see a printout of the selections and respond by pressing a control panel button. The setting can also be changed through software commands from computer.

NOTE

The memory switch settings are memorized while the printer is powered off.

Using the Control Panel

Use the following three control panel buttons to respond to the questions that appear at the end of the printouts.

- **FEED** - Press to indicate an affirmative (YES) response.
- **TEAR PAPER** - Press to indicate a negative (NO) response.
- **LOAD/UNLOAD** - Press to quit current menu selection.

Table 3-3 Factory Memory Switch Settings

MEMORY SWITHCH	SETTINGS
Print Mode Settings	
1. Type style and pitch selection	Front panel or Software
2. Print style at power-up	Courier 10
3. 12 CPI Draft Speed	High speed
4. Language character sets	USA
5. Character set default	IBM® /Standard
6. Shape of zero	0
7. Graphics print direction	Unidirectional
8. Quiet mode	Off
9. Heavy Duty	On
Form Settings	
1. Form feed length in inches	11 inch
2. Skip over perforation	Off
3 Lines per inch	6 lpi
4. 0 margin emulation	Disable
5. Auto tear off	Disable
6. Cutter position	Acrylic cover
7. CR function	CR only
8. LF function	CR + LF
9. Buffer full auto line feed	On
10. Paper handling mode	Push Tractor
11. Sheet feeder left margin*	Column 1

* This item is printed only with P32Q.

Table 3-3 Factory Memory Swith Settings (cont'd)

MEMORY SWITHCH	SETTINGS
Interface Settings	
1. Download characters/Buffer capacity	96 characters/4 KBytes
2. Baud rate*	9600
3. Word length*	8bits
4. Parity check*	None
5. DCD, CTS, DSR signals*	Enable
6. Communication protocol*	X-on/X-off
Horizontal Alignment	
1. Draft	0
2. LQ	0

* This item is used for RS-232C optional board.
DCD = Data Carrier Detect
CTS = Clear To Send
DSR = Data Set Ready

Accessing the Menu Mode

Follow these steps to enter the menu mode and use the memory switches.

1. Check that the power cable is connected, ribbon cartridge installed, paper loaded, and power switch OFF.
2. Press **SELECT** while turning on the printer. The printer will print out the current memory switch settings. Figure 3-2 shows an example of memory switch settings. Note that the selected settings are between brackets ([ ]).

NOTE

If necessary, you can enter the menu mode directly without current settings printouts by pressing **SELECT** and **FEED** while turning on the printer.

3. The printer will enter the memory switch menu mode after printing out the current memory switch settings.
4. Press either **FEED** or **TEAR PAPER** until the desired parameter is printed out.
5. Press **TEAR PAPER** until the desired parameter is selected.
6. Check the printout for applicability to current requirements. If setting requires modification, select the desired parameter as per steps 4 and 5, above.

   If other menu setting requires modification, press **LOAD/UNLOAD**. Then select the desired parameter as per steps 4 and 5, above.
7. Once the changes have been made, press **LOAD/UNLOAD** twice to save the changes and exit the menu mode.
8. Press **LOAD/UNLOAD** to place the printer online.

```
                PRINTER MEMORY SETTINGS

CURRENT PRINTER SETTING ( CURRENT SETTING IS [...] )

     PRINT MODE SETTINGS
         1. TYPESTYLE AND PITCH SELECTION
            [FRONT PANEL OR SOFTWARE]   FRONT PANEL ONLY
         2. PRINT STYLE AT POWER UP
            [COURIER 10]      COURIER 12       PRESTIGE 10      PRESTIGE 12
             Q.GOTHIC 10      Q.GOTHIC 12      D.GOTHIC 10      D.GOTHIC 12
             HELVETICA(R) PS            TIMES(R) PS            BOLD PS
         3. 12 CPI DRAFT SPEED
            [HIGH SPEED]   NORMAL
         4. LANGUAGE CHAR SET
            [USA]     FRA      GER      ENG      DM1      SWD      ITL      SPA
             JPN      NOR      DM2      NET      TUK      SP2      L.A.     MUL
             POR      CFR      NR2
         5. CHAR SET DEFAULT
             ITALIC   [IBM(R)/STANDARD]
         6. SHAPE OF ZERO
            [0]   Ø
         7. GRAPHICS PRINT DIRECTION
            [UNIDIRECTIONAL]    BIDIRECTIONAL
         8. QUIET MODE
             ON      [OFF]
         9. HEAVY DUTY CHECK
            [ON]     OFF
     FORMS SETTINGS
         1. FORM FEED LENGTH IN INCHES
             3   3.5   4   5.5   6   7   8   8.5  [11]  11-2/3   12   14
         2. SKIP OVER PERFORATION
             ON  [OFF]
         3. LINES PER INCH
            [6]   8
         4. 0 MARGIN EMULATION
            [DISABLE]    ENABLE
         5. AUTO TEAR OFF
            [DISABLE]    ENABLE
         6. CUTTER POSITION
            [ACRYLIC COVER]       ROLLER COVER
         7. CR FUNCTION
             CR ONLY      CR+LF     [CR W/O PRINT OUT]
         8. LF FUNCTION
            [CR+LF]       LF ONLY
         9. BUFFER FULL AUTO LINE FEED
            [ON]  OFF
        10. PAPER HANDLING MODE
            [PUSH TRACTOR]      SHEET FEEDER       PULL TRACTOR
        11. SHEET FEEDER LEFT MARGIN
            [COLUMN 1]     COLUMN 35
     INTERFACE SETTINGS
         1. DOWNLOAD CHARACTERS/BUFFER CAPACITY
             0 CHAR/8K     [96 CHAR/4K]     128 CHAR/0.5K
         2. BAUD RATE
             150    300    600    1200    2400    4800   [9600]   19200
         3. WORD LENGTH
            [8BITS]   7BITS
         4. PARITY CHECK
            [NONE]    ODD     EVEN
         5. DCD,CTS,DSR SIGNALS
            [ENABLE]   DISABLE
         6. COMMUNICATION PROTOCOL
             ETX/ACK     [X-ON/X-OFF]     X-ON/X-OFF REPETITION
     HORIZONTAL ALIGNMENT
         1. DRAFT
             -4  -3  -2  -1 [0] +1  +2  +3  +4
            |||||||||||||||||||||||||||||||||||

         2. LQ
             -4  -3  -2  -1 [0] +1  +2  +3  +4
            |||||||||||||||||||||||||||||||||||


CONTROL PANEL BUTTON FUNCTIONS
      1.PRESS FEED          / YES  = MOVE TO NEXT SELECTION
      2.PRESS TEAR PAPER    / NO   = CHOOSE MODE IN MAIN MENU
                                   = CHANGE SETTING IN A MODE
      3.PRESS LOAD UNLOAD / QUIT   = EXIT AND SAVE SETTINGS
                                   = RETURN TO MAIN MENU

          EXIT FROM MENU MODE ?

          EXIT TO ON-LINE STATUS
```

Figure 3-2 Example of Memory Switch Settings

SECRET MODE

Replacement mother boards are manufactured for use in either printer model. However, after replacing the board, the board's EEPROM must be checked and reset as necessary to match the various printer's functions.

Use the secret mode to access the hidden EEPROM memory switches. The EEPROM memory switches allow you to control the printer's function which cannot be set by the menu mode.

Memory Switch Descriptions

Table 3-4 describes the secret mode switches. Note that there are 15 switches (S1 through S15) on the menu, and that each switch has eight subswitches. The factory settings are underlined.

CAUTION

Information contained in this section shall not be released to users without prior consultation with technical staff members.

Table 3-4 Secret Mode Switches

SWITCH	FUNCTION	SETTINGS
S 1-1	Type style and pitch selection	1: Operator panel only 0: Operator panel or software
S 1-2	12 cpi draft speed	1: High speed 0: Normal
S 1-3	Character set default	1: IBM® standard 0: Italic
S 1-4	Shape of zero	1: Ø 0: 0
S 1-5	Graphics print direction	1: Bidirectional 0: Unidirectional
S 1-6	Quiet mode	1: On 0: Off
S 1-7	Not used.	Must be 0
S 1-8	Heavy duty check	1: No check 0: Check
S 2-1	Not used.	Must be 0
S 2-2	Not used.	Must be 0
S 2-3	Not used.	Must be 0
S 2-4	Not used.	Must be 0
S 2-5 S 2-6 S 2-7 S 2-8	Print style at power up See Table 3-5.	
S 3-1	Not used	Must be 0
S 3-2	Not used	Must be 0
S 3-3	Not used	Must be 0
S 3-4 S 3-5 S 3-6 S 3-7 S 3-8	Language character set See Table 3-6.	
S 4-1 S 4-2 S 4-3 S 4-4	Form length See Table 3-7	
S 4-5	Not used	Must be 0
S 4-6	Not used	Must be 0
S 4-7	Not used	Must be 0
S 4-8	Not used	Must be 0

Table 3-4 Secret Mode Switches (cont'd)

SWITCH	FUNCTION	SETTINGS
S 5-1	Skip over perforation	1: On 0: Off
S 5-2	Not used.	Must be 0
S 5-3	Line spacing pitch	1: 1/8 in. 0: 1/6 in.
S 5-4	Not used.	Must be 0
S 5-5	0 margin emulation	1: Enable 0: Disable
S 5-6	Auto tear off	1: Enable 0: Disable
S 5-7 S 5-8	Paper handling mode See Table 3-8.	
S 6-1 S 6-2	CR function See Table 3-9.	
S 6-3	LF function	1: LF only 0: CR+LF
S 6-4	Not used	Must be 0
S 6-5	Buffer full auto line feed	1: Off 0: On
S 6-6	Not used.	Must be 0
S 6-7	Tear-off position	1: Roller cover 0: Acrylic cover
S 6-8	Sheet feeder left margine.	1: Column 35 0: Column 1
S 7-1 S 7-2	Download characters/buffer capacity See Table 3-10.	
S 7-3	Not used	Must be 0
S 7-4	Not used	Must be 0
S 7-5	Not used	Must be 0
S 7-6	Not used	Must be 0
S 7-7	Not used	Must be 0
S 7-8	Not used	Must be 0

Table 3-4 Secret Mode Switches (cont'd)

SWITCH	FUNCTION	SETTINGS
S 8-1	Communication test	1: On 0: Off
S 8-2	DTR (Data terminal ready)	1: Separates SCA (reverse channel) and DTR 0: Sends SCA to DTR signal line
S 8-3 S 8-4	Parity check See Table 3-11.	
S 8-5	Bit length	1: 7 bits 0: 8 bits
S 8-6 S 8-7 S 8-8	Baud rate See Table 3-12.	
S 9-1 S 9-2	Receive buffer length of RS-232C interface boad See Table 3-13.	
S 9-3 S 9-4	Protocol See Table 3-14.	
S 9-5	SCA (reverse channel) polarity	1: Low 0: High
S 9-6	Break inhibit	1: No signal break in error state 0: Signal break in error state
S 9-7	Not used.	Must be 0
S 9-8	DSR, CTS, DCD signals	1: Disable 0: Enable
S 10-1 S 10-2 S 10-3 S 10-4	Horizontal alignment in draft mode See Table 3-15.	
S 10-5 S 10-6 S 10-7 S 10-8	Horizontal alignment in LQ mode See Table 3-16.	
S 11-1	Not used	Must be 0
S 11-2	Not used	Must be 0
S 11-3	Not used	Must be 0
S 11-4	Not used	Must be 0
S 11-5	Not used	Must be 0
S 11-6	Not used	Must be 0
S 11-7	Not used	Must be 0
S 11-8	Not used	Must be 0
S 12-1	Not used	Must be 0
S 12-2	Not used	Must be 0
S 12-3	Not used	Must be 0
S 12-4	Not used	Must be 0
S 12-5	Not used	Must be 0
S 12-6	Not used	Must be 0
S 12-7	Not used	Must be 0
S 12-8	Not used	Must be 0

Table 3-4 Secret Mode Switches (cont'd)

SWITCH	FUNCTION	SETTINGS
S 13-1	Not used	Must be 0
S 13-2	Not used	Must be 0
S 13-3	Not used	Must be 0
S 13-4	Not used	Must be 0
S 13-5	Not used	Must be 0
S 13-6	Not used	Must be 0
S 13-7	Not used	Must be 0
S 13-8	Not used	Must be 0
S 14-1 S 14-2 S 14-3 S 14-4	Spacing correction in draft-10, HS-12, 80 dpi dot mode (factory setting) See Table 3-17.	
S 14-5 S 14-6 S 14-7 S 14-8	Spacing correction in draft-12, -15, LQ mode (factory setting) See Table 3-18.	
S 15-1	Model name	1: P22Q 0: P32Q
S 15-2	Not used	Must be 0
S 15-3	Not used	Must be 0
S 15-4	Not used	Must be 0
S 15-5	Not used	Must be 0
S 15-6	Carrier homing	1: Disable 0: Enable
S 15-7	Print head impact	1: Disable 0: Enable
S 15-8	Aging mode	1: Disable 0: Enable

Table 3-5 Print Style at Power Up

Print Style	SW			
	2-5	2-6	2-7	2-8
Courier 10	0	0	0	0
Courier 12	0	0	0	1
Prestige 10	0	0	1	0
Prestige 12	0	0	1	1
Quick Gothic 10	0	1	0	0
Quick Gothic 12	0	1	0	1
Draft Gothic 10	0	1	1	0
Draft Gothic 12	0	1	1	1
Helvetica P.S.	1	0	0	0
Times P.S.	1	0	0	1
Bold P.S.	1	0	1	0

Table 3-6 Language Character Set

Lauguage Character Set	SW				
	3-4	3-5	3-6	3-7	3-8
United States	0	0	0	0	0
France	0	0	0	0	1
Germany	0	0	0	1	0
England	0	0	0	1	1
Denmark I	0	0	1	0	0
Sweden	0	0	1	0	1
Italy	0	0	1	1	0
Spain	0	0	1	1	1
Japan	0	1	0	0	0
Norway	0	1	0	0	1
Denmark II	0	1	0	1	0
Netherlands	0	1	0	1	1
Turkey	0	1	1	0	0
Spain II	0	1	1	0	1
Latin America	0	1	1	1	0
———	0	1	1	1	1
Multilingual	1	0	0	0	0
Portugal	1	0	0	0	1
Canada-French	1	0	0	1	0
Norway - 2	1	0	0	1	1

Table 3-7 Form Length

Form Length	SW			
	4-1	4-2	4-3	4-4
3 in.	0	0	0	0
3.5 in.	0	0	0	1
4 in.	0	0	1	0
5.5 in.	0	0	1	1
6 in.	0	1	0	0
7 in.	0	1	0	1
8 in.	0	1	1	0
8.5 in.	0	1	1	1
11 in.	1	0	0	0
11 2/3 in.	1	0	0	1
12 in.	1	0	1	0
14 in.	1	0	1	1

Table 3-8 Paper Handling Mode

Paper Handling Mode	SW	
	5-7	5-8
Push Tractor	0	0
Sheet Feeder	0	1
Pull Tractor	1	0
(Prohibit)	1	1

Table 3-9 CR Function

CR Function	SW	
	6-1	6-2
CR only	0	0
CR+LF	0	1
CR without printout	1	0
	1	1

Table 3-10 Download Characters/Buffer Capacity

Download Characters/Buffer Capacity	SW	
	7-1	7-2
96 characters/4 KB	0	0
128 characters/0.5 KB	0	1
0 characters/8 KB	1	0
(Without download character)	1	1

Table 3-11 Parity Check

Parity Check	SW	
	8-3	8-4
Non parity	0	0
Odd parity	0	1
Disabled	1	0
Even parity	1	1

Table 3-12 Baud Rate

Baud Rate	SW		
	8-6	8-7	8-8
1200 bps	0	0	0
19200 bps	0	0	1
4800 bps	0	1	0
300 bps	0	1	1
2400 bps	1	0	0
150 bps	1	0	1
9600 bps	1	1	0
600 bps	1	1	1

Table 3-13 Receive Buffer Length

Buffer Capacity	SW	
	9-1	9-2
152 bytes	0	0
288 bytes	0	1
560 bytes	1	0
8056 bytes	1	1

Table 3-14 Protocol

Protocol	SW	
	9-3	9-4
X-on/X-off	0	0
ETX/ACK	0	1
X-on/X-off repetition	1	0
Non buffer mode	1	1

Table 3-15 Horizontal Alignment (draft mode)

Horizontal Alignment	SW			
	10-1	10-2	10-3	10-4
Factory-set position	0	0	0	0
+1	0	0	0	1
+2	0	0	1	0
+3	0	0	1	1
+4	0	1	0	0
-4	1	1	0	0
-3	1	1	0	1
-2	1	1	1	0
-1	1	1	1	1

Table 3-16 Horizontal Alignment (LQ mode)

Horizontal Alignment	SW			
	10-5	10-6	10-7	10-8
Factory-set position	0	0	0	0
+1	0	0	0	1
+2	0	0	1	0
+3	0	0	1	1
+4	0	1	0	0
-4	1	1	0	0
-3	1	1	0	1
-2	1	1	1	0
-1	1	1	1	1

Table 3-17 Factory Spacing Correction (draft-10, HS-12, 80-dpi dot mode)

Horizontal Alignment	SW			
	14-1	10-2	14-3	14-4
Basic position	0	0	0	0
+1	0	0	0	1
+2	0	0	1	0
+3	0	0	1	1
+4	0	1	0	0
-4	1	1	0	0
-3	1	1	0	1
-2	1	1	1	0
-1	1	1	1	1

Table 3-18 Factory Spacing Correction (draft-12, -15, LQ mode)

Horizontal Alignment	SW			
	14-5	14-6	14-7	14-8
Basic position	0	0	0	0
+1	0	0	0	1
+2	0	0	1	0
+3	0	0	1	1
+4	0	1	0	0
-4	1	1	0	0
-3	1	1	0	1
-2	1	1	1	0
-1	1	1	1	1

Accessing the Secret Mode

Follow these steps to enter the secret mode and access the memory switches.

CAUTION

Use care when performing the following procedures. Read and understand all procedures before attempting to perform them. Wrong switch settings may disable the printer.

1. Load continuous paper. Check that the power switch is OFF and top cover removed. Unplug the interface cable from the printer.
2. Enter the menu mode by pressing **SELECT** and **FEED** while turning on the printer. Check the "EXIT FROM MENU MODE?" question.
3. Hold down **SELECT**, the press **LOAD/UNLOAD**. The secret mode menu will print and printer questions "FACTORY?" (see Figure 3-3).
4. Check the printout for your printer function.

   If you want to reset all the settings to the factory settings, press **SELECT** and **FEED**. If not, press any button other than above.

   Then printer will print out the spacing correction pattern (see Figure 3-3).
5. Check the printout for spacing deviation. If necessary, press **TEAR PAPER** until the vertical lines are aligned and press **LOAD/UNLOAD**.
6. Printer prints the S1-1 setting and allows the memory switch resetting.

   Use the following three control panel buttons to respond to the printouts.

   - **FEED** - Press to move to the next subswitch selection.
   - **TEAR PAPER** - Press to change the settings.
   - **LOAD/UNLOAD** - Press to move to the next switch.
7. If the desired subswitch number is not printed, press **FEED** until the desired subswitch number appears.

   If the desired switch number is not printed, press **LOAD/UNLOAD** until the desired switch number appears.
8. Reset the current setting to either 1 or 0 by pressing **TEAR PAPER** until the desired setting appears.
9. When the memory switch resetting is completed, press **LOAD/UNLOAD** until the "CHANGES SAVED" and "EXIT FROM MENU MODE" are printed. Then press **FEED** to place the printer online.

```
      CONTROL PANEL BUTTON FUNCTIONS
            1.PRESS FEED          / YES  = MOVE TO NEXT SELECTION
            2.PRESS TEAR PAPER    / NO   = CHOOSE MODE IN MAIN MENU
                                         = CHANGE SETTING IN A MODE
            3.PRESS LOAD UNLOAD   / QUIT = EXIT AND SAVE SETTINGS
                                         = RETURN TO MAIN MENU

                  EXIT FROM MENU MODE ?

ROM Rev. : 19
F/W :  ce1900 nov.01, 1991
S1  01100000  S2  00000000  S3  00000000  S4  10000000  S5  00000000
S6  00000000  S7  00000000  S8  00000110  S9  11000100  S10 00000000
S11 10000000  S12 00000000  S13 00000000  S14 00000000  S15 10000000
CUT POS.      PTR : 0000
LOAD POS.     PTR : 02AC    CSG : 02D0    CSF : 00FC
                  FACTORY ?
      SPACING CORRECTION
              DRAFT
                   -4  -3  -2  -1 [0] +1  +2  +3  +4
                   |||||||||||||||||||||||||||||||||

              LQ
                   -4  -3  -2  -1 [0] +1  +2  +3  +4
                   |||||||||||||||||||||||||||||||||

                S1 -1 0
                S2 -1 0
                S3 -1 0
                S4 -1 1
                S5 -1 0
                S6 -1 0
                S7 -1 0
                S8 -1 0
                S9 -1 1
                S10-1 0
                S11-1 1
                S12-1 0
                S13-1 0
                S14-1 0
                S15-1 1

              CHANGES SAVED
              EXIT FROM MENU MODE ?
              EXIT TO ON-LINE STATUS
```

Figure 3-3 Example Printout of the Secret Mode

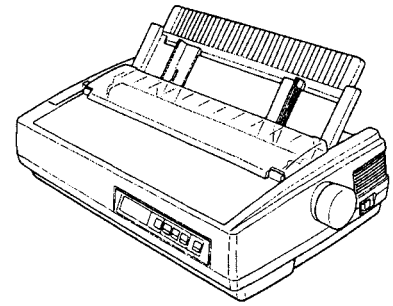
Automatic Model Recognition

Follow these steps to set the printer model (P22Q/P32Q) into the memory switch by using the automatic model recognition feature.

1. Check that the power switch is OFF and unplug the interface cable from the printer.
2. Move the print head to the most right position.
3. Turn power on while depressing **LOAD/UNLOAD, TEAR PAPER, FEED** and **SELECT** buttons. (The operator panel LED turn on all and print head does not move to home.)
4. Depress FEED button to executes the automatic model recognition feature. The print head will move to home and the printer will recognize own model (P22Q or P32Q) by checking the moving volume of print head.
   The model type will be written into the EEPROM automatically.

Section 4

Maintenance



This section contains information for maintaining the printer in top condition for continuous, error-free, high-quality performance. Included in this section are procedures for cleaning, printer adjustments, and lubrication.

While performing any maintenance procedure, visually inspect the printer for loose, broken, or missing parts and any other obvious damage. Correct as necessary.

On completion of any procedures in this section, perform the printer tests outlined in Section 2.

CLEANING

The printer should be cleaned as necessary. There is no set schedule for cleaning, as it depends on the extent of printer use and the environment in which it is operating.

Printer cleaning materials include a soft, lint-free cloth, water, and a mild liquid detergent.

CAUTION

Before starting any cleaning procedure, turn off and unplug the printer. Do not use benzine, paint thinner, or other chemicals (or abrasives) to clean the printer's plastic surfaces. Such cleaning materials may dissolve the plastic or cause discoloration.

1. Visually inspect the entire printer, and remove foreign materials (such as bits of paper, dust or paper clips).
2. Use a soft, lint-free cloth to remove dust from the guide shaft and front stay.
3. Clean any debris from the base frame under the carrier assembly.
4. Clean the cover with a soft cloth dampened with mild detergent and water.
5. Remove any pieces of paper attached to the tractor assembly.
6. Clean the platen with a commercial platen cleaner.

ADJUSTMENTS

This subsection contains adjustment procedures for setting the card holder, print head gap, print force sensor, home position sensor, and SP motor. The adjustments should be made as indicated by visual observation, poor operation, or as described during troubleshooting and repair.

The following tools are required to adjust Pinwriter:

- No. 2 Phillips screwdriver
- Platen gap check jig (136-789883-A)
- Gap adjustment tool (136-789884-A)
- Tension adjustment tool (136-789885-A)
- Sensor fix jig (136-789886-A)

Card Holder Adjustment

If the print is smudged or the auto-load feature is not operating properly, the card holder may need to be adjusted.

1. Position the paper thickness setting lever to position 4.
2. Remove the top cover assembly, ribbon cartridge, print head, and print mask.
3. Slide the carrier to the center of the printer.
4. Loosen the two screws that fasten the card holder to the carrier.

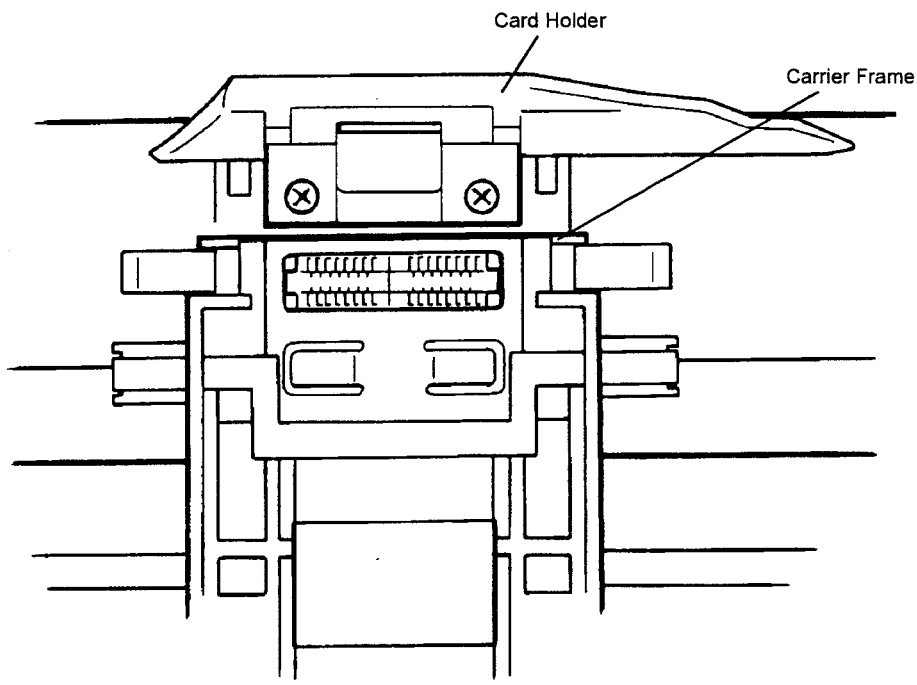


Figure 4-1 Card Holder Adjustment

5. Prepare the cut sheet (55 kg weight and 0.1 mm thickness). Insert the sheet between the card holder and the platen (see Figure 4-2).
6. Move the sheet and check that its movement is freely.

   If not, perform step 4.
7. Move the paper thickness setting lever to position 3. Move the sheet and check that its movement has slightly resistance.

   If not, perform step 4.

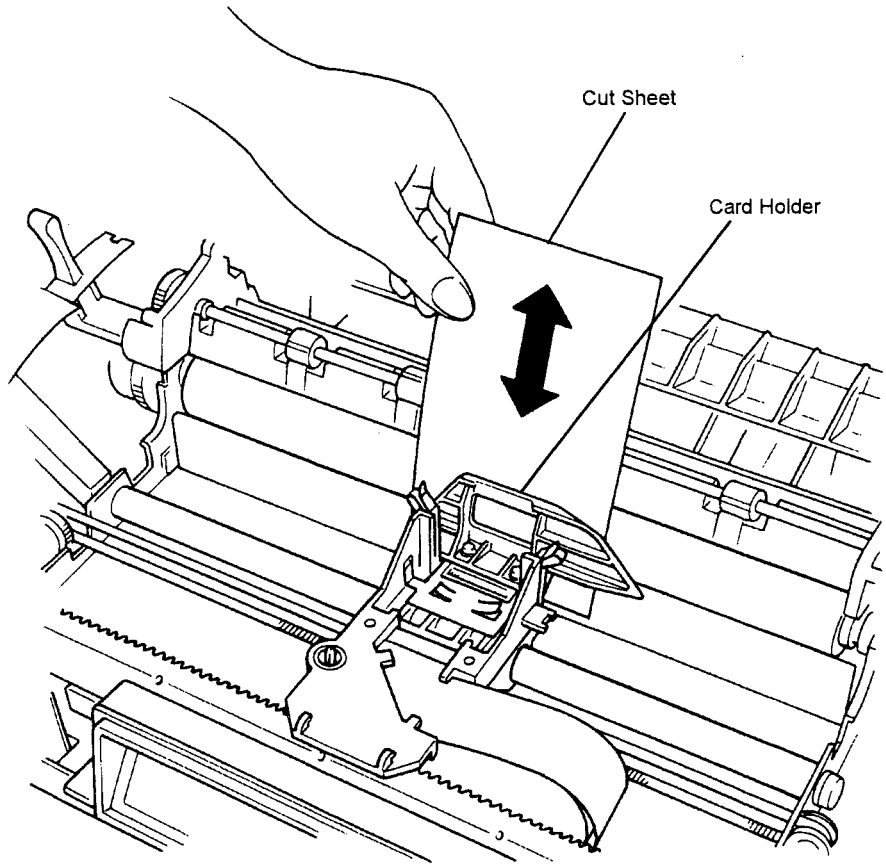


Figure 4-2 Card Holder Check

8. Replace the print mask, print head, ribbon cartridge, and top cover assembly.

Perform the self-test and check the print quality. If the print is smudged or the paper does not load properly, perform the card holder adjustment again.

Print Head Gap Adjustment

The print head gap adjustment should be made when smudging appears on one side of the paper and not the other. This is especially noticeable when printing on multipart forms.

Before performing the gap adjustment, check for a worn ribbon or print pins that are not firing or are worn. See Section 2 for procedures on ribbon replacement and print wire check. If poor print quality continues, perform the following adjustment.

1. Position the paper thickness setting lever to position 3.
2. Remove the middle cover assembly (see Section 6).
3. Center the carrier assembly between the left and right sides.

   Open the roller cover and remove the ribbon cartridge.
4. Remove the print head by releasing the head clamps (see Figure 6-9 in Section 6).
5. Remove the card holder by removing the two screws (see Figure 6-10 in Section 6).
6. Install the platen gap check jig to the carrier, hold it by the head clamps and move it to the left side of the printer. Check that the jig gauge reads –0.04 ±0.03 mm (see Figure 4-3).

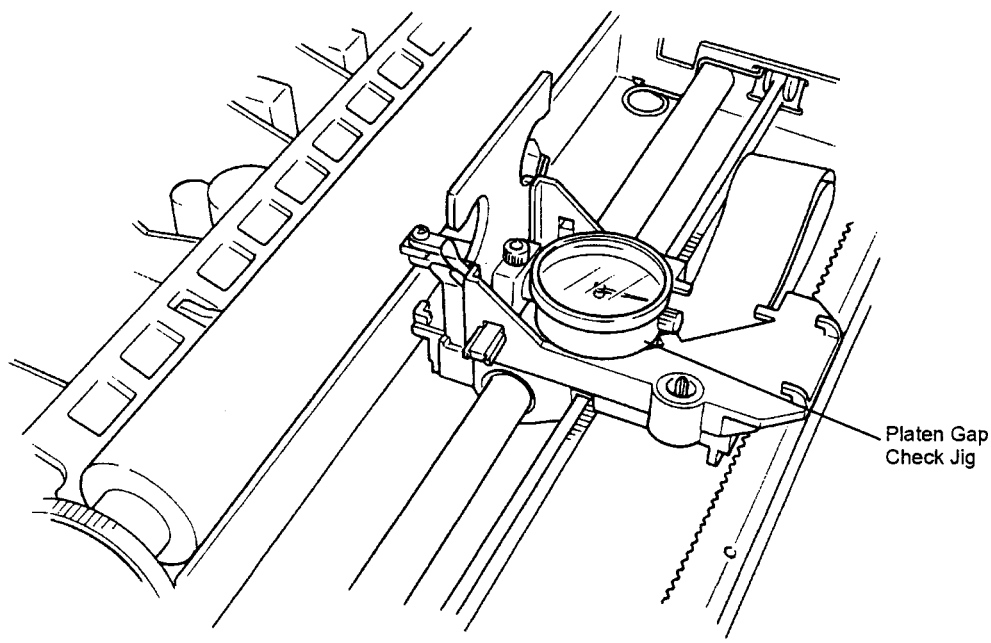


Figure 4-3 Platen Gap Check Jig

7. Move the carrier assembly to the right side of the printer and check the gauge reading. The reading should be within the –0.04 ± 0.03 mm range at both sides. If not, perform step 8. If the readings are within range, perform step 9.
8. If the readings are not within range at the left and right sides, adjust the right-side gap as follows:
   - Carefully turn the eccentric bushing on the right end of the guide shaft (see Figure 4-4).
   - Check the gauge reading. If not in range (–0.04 ±0.03 mm), turn the bushing until the gap is within the same range as the left side.

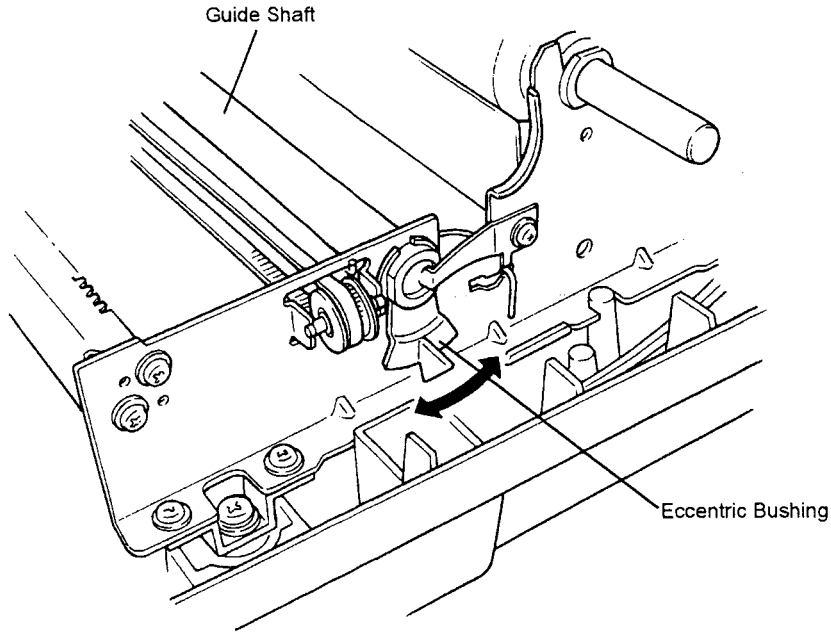


Figure 4-4 Eccentric Bushing (Model P22Q)

9. Center the carrier assembly between the left and right side frames. Check the gauge reading. If the reading is within range, the adjustment is complete. If the reading is not in range, adjust as follows:

   - Loosen the paper thickness setting level screw:

     — on the paper thickness setting level (model P22Q, see Figure 4-5).

     — on the balanser weight assembly (model P32Q, see Figure 4-6).

   - Insert a gap adjustment tool into the hole in the left side of the guide shaft (see Figure 4-5).

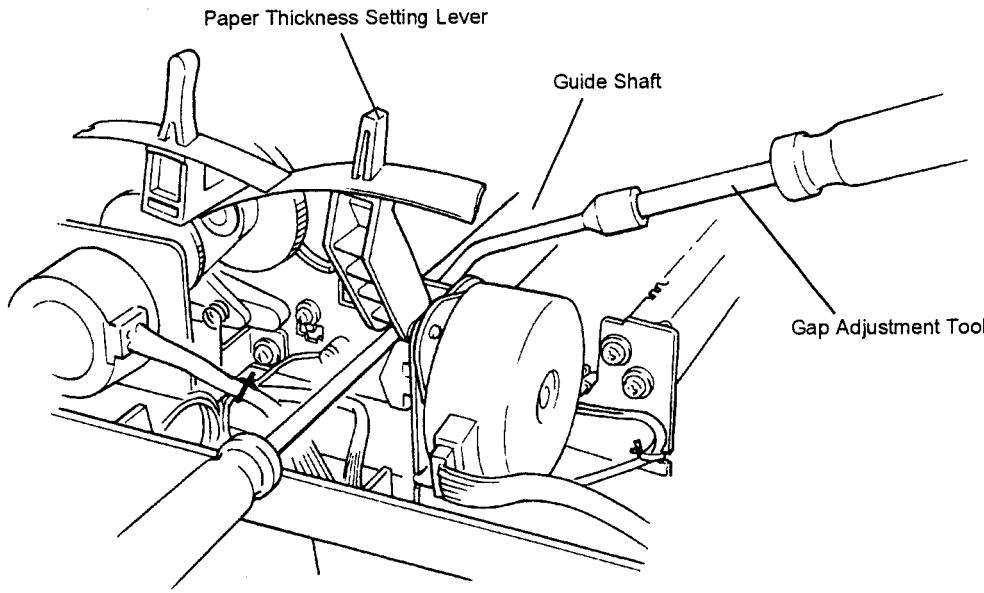


Figure 4-5 Print Head Adjustment (Model P22Q)

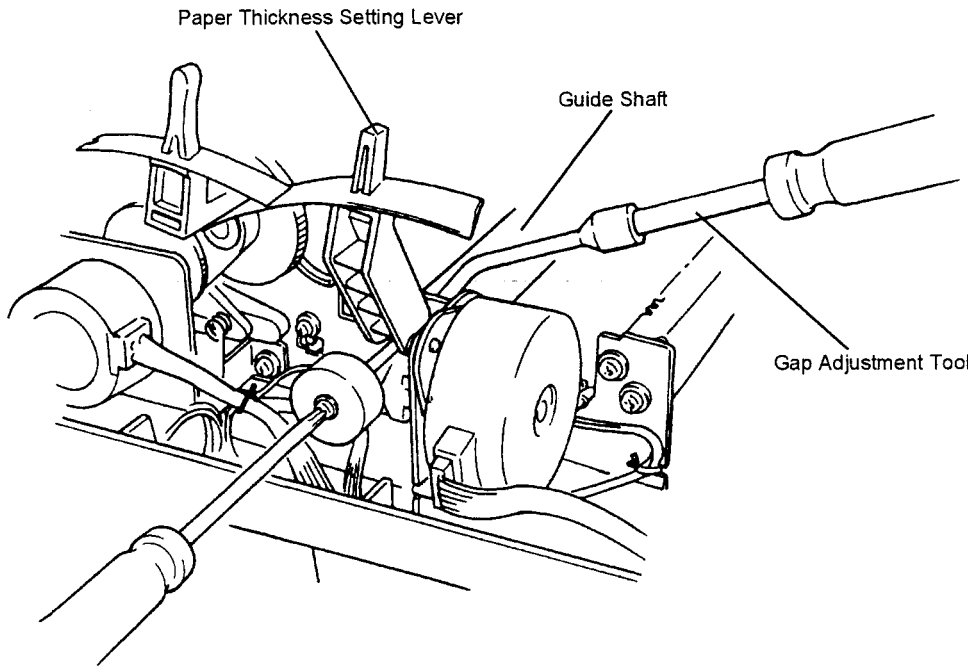


Figure 4-6 Print Head Adjustment (Model P32Q)

- Carefully turn the guide shaft with the tool until the reading is within –0.04 ±0.03 mm.
- While holding the shaft in place with the tool, tighten the paper thickness setting lever screw.
- Check the reading again to ensure that it did not change while tightening the screw.

10. Reinstall the card holder and ribbon cartridge.
11. Close the roller cover and reinstall the middle cover assembly.

Print Force Sensor Adjustment

The print force sensor , when actuated by the paper thickness setting lever at positions 6 through 9, signals the SP motor to reduce its speed by 2/3. If the speed is not reduced, poor printout with multipart forms may occur. The poor printout is indicated by light print or no print on the second and following parts of the form. If this occurs, adjust the switch as follows.

1. Position the paper thickness setting lever to position 6.
2. Remove the middle cover assembly (see Section 6).
3. Check that the paper thickness setting lever is hitting the arm of the print force sensor (see Figures 4-7 and 4-8).
4. If the paper thickness setting lever is hitting the arm, and the print is light or missing, replace the switch per Section 6. If the paper thickness setting lever is not hitting the arm, adjust the sensor as follows:
   - Loosen the screw holding the sensor to the left side frame.
   - Turn the switch until its arm is against the paper thickness setting lever. Tighten the screw.

   If necessary, carefully bend the switch lever a small amount.

CAUTION

Do not bend this lever too much or too often, or the lever may break.

5. Reinstall the middle cover assembly.
6. Check the printer operation by loading a multipart form into the printer and printing on the form.

NOTE

When the paper thickness setting lever is at position 6 through 9, Type Style LED should blink.

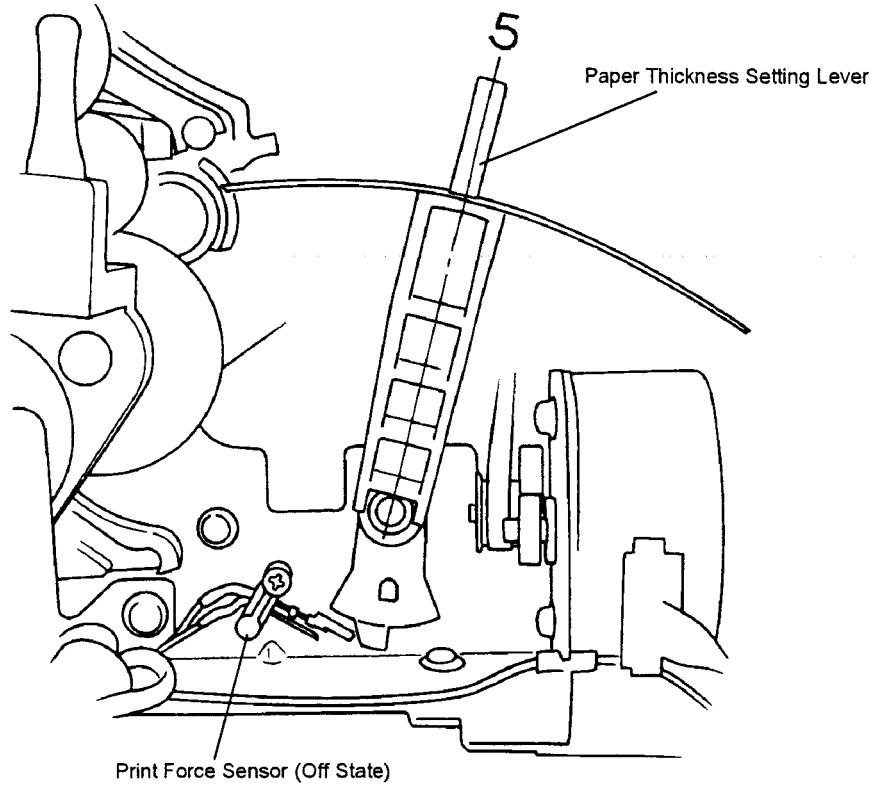


Figure 4-7 Print Force Sensor – Position 5 (Model P22Q)

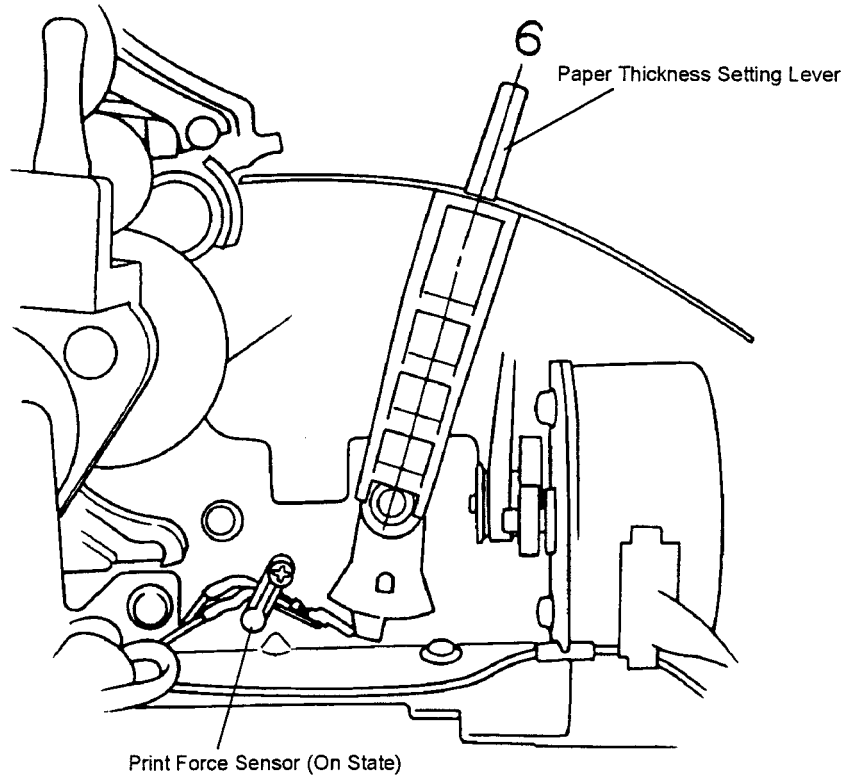


Figure 4-8 Print Force Sensor – Position 6 (Model P22Q)

First Print Position Adjustment

Perform this adjustment if the carrier motion interferes with the printer's left or right side frame, or if the status code (SP homing error) appears on the control panel.

1. Remove the top cover assembly.
2. Perform a self-test and remove the print head.
3. Fit the sensor fix jig to the left side frame (see Figure 4-9). The first-column characters should be seen through the slit of the jig.
4. If you need to adjust the first print position, loosen the sensor assembly mounting screw (see Figure 4-9).
5. Move the sensor in the direction you want home position to move.
6. Tighten the sensor assembly mounting screw.
7. Replace the top cover assembly.

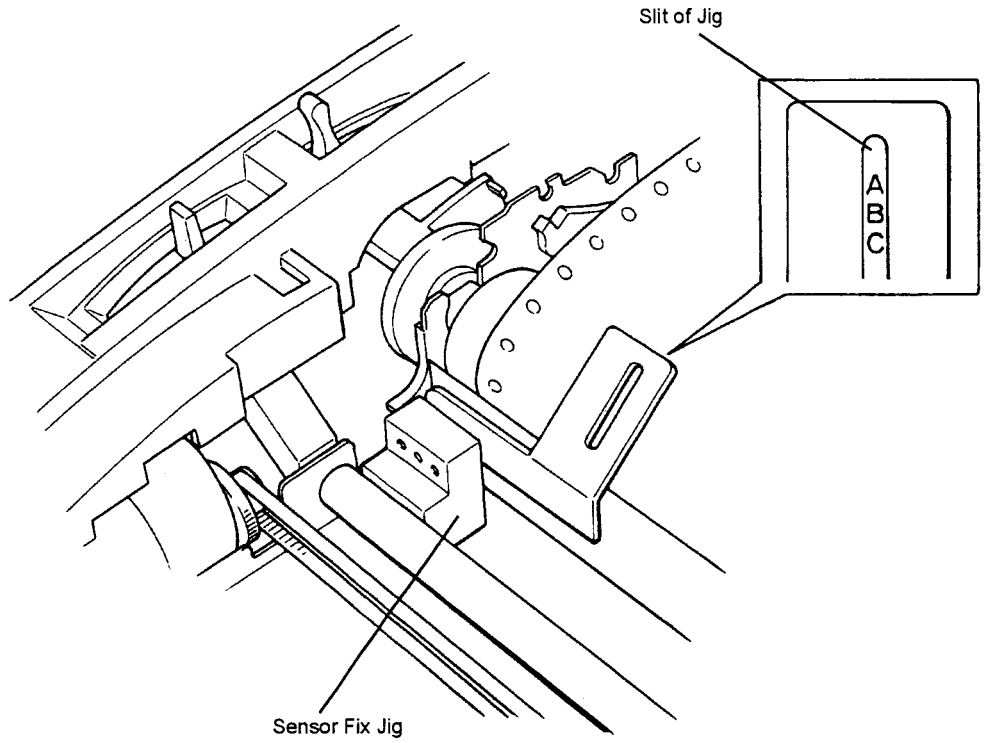


Figure 4-9 Sensor Assembly Mounting Screw

Timing Belt Tension Adjustment

Perform the timing belt tension adjustment to correct improper horizontal spacing.

1. Remove the middle cover assembly (see Section 6).
2. Slide the carrier to the right side of the printer.
3. Using a tension gauge, pull up the center of the belt. Pull up the belt so that the lower part of the belt meets the upper part. (see Figure 4-9). The standard values are as follows:
   - P22Q : 270 g to 330 g
   - P32Q : 190 g to 250 g

Perform a self-test to verify that the horizontal spacing is correct.

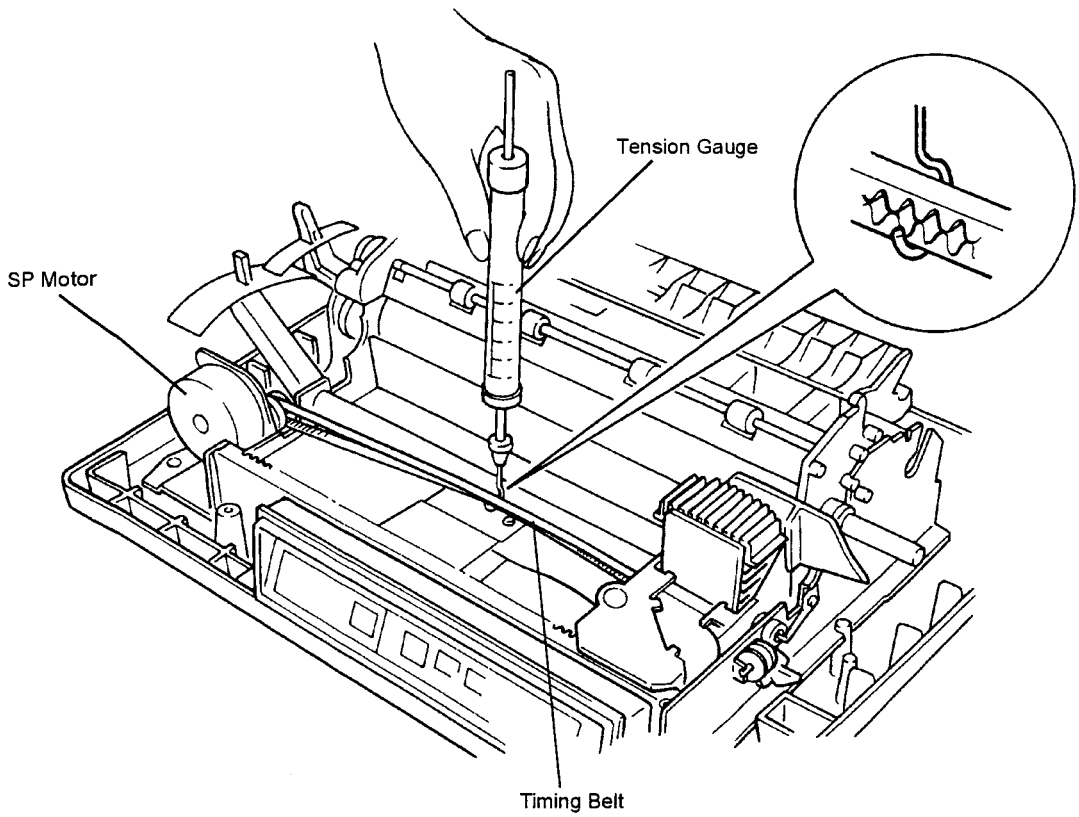


Figure 4-10 Timing Belt Tension Adjustment

4. If you need to adjust the belt tension:
   — loosen the SP motor mounting screws (model P22Q, see Figure 4-11).
   — first remove the balancer weight assembly. Then loosen the SP motor mounting screws (model P32Q, see Figure 4-12).
5. Fit the pin of tension adjustment tool to the hole on left side frame.
6. Adjust the belt tension by turning the tension adjustment tool.
7. Tighten the SP motor screws.
8. Replace the middle cover.

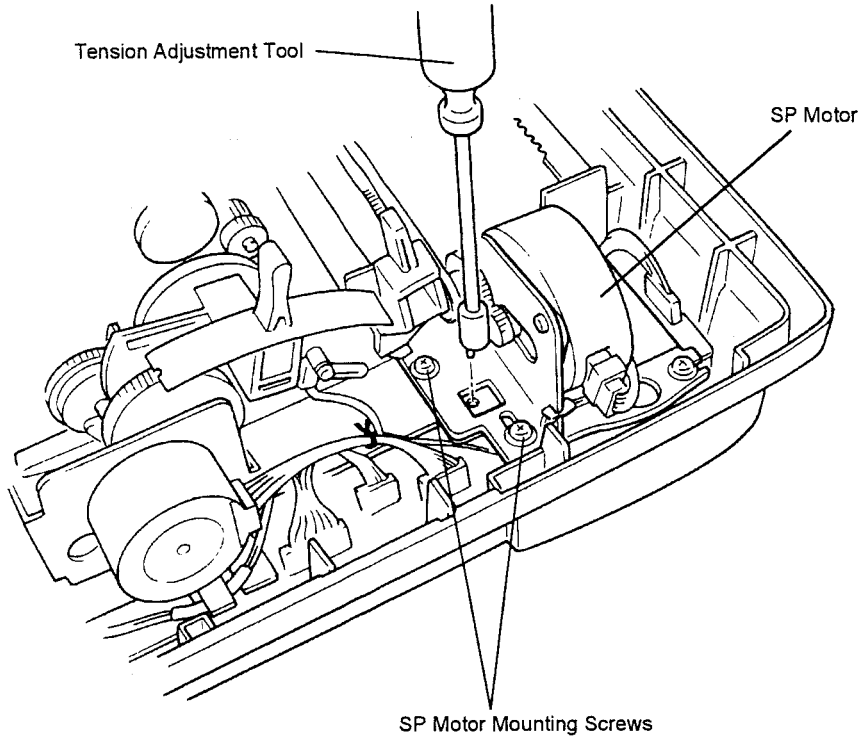


Figure 4-11 SP Motor Mounting Screws

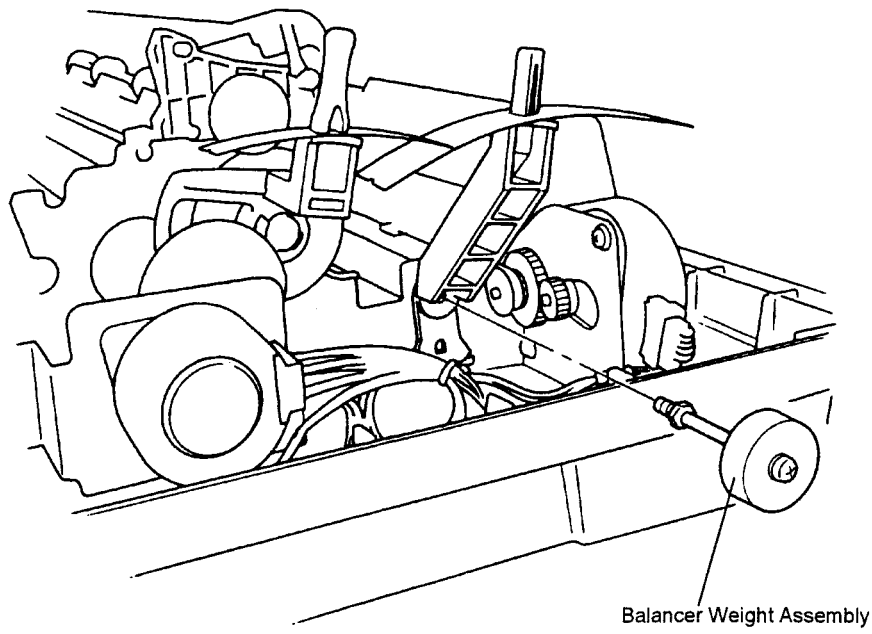


Figure 4-12 Balancer Weight Assembly Removal (Model P32Q only)

LUBRICATION

Lubricate parts only if they have been replaced or if the lubricant has been removed during a repair, cleaning, or adjustment procedure. Tables 4-1 and 4-2 give the lubrication requirements for each point. The item numbers in Tables 4-1 and 4-2 correspond to the item numbers in Figures 4-13 through 4-21. The figures show the lubrication points. Note that most lubrication points require disassembly of the printer. See Section 6 for disassembly procedures.

Recommended lubricants include the following.

- Daphne Eponex Grease #2
  Use a light brush coat
  Lube code : G

- Daphne Mechanic Oil #132
  Use 1 to 2 drops
  Lube Code : O

Table 4-1 Lubrication Points for Mechanism Assembly

ITEM NO.	LOCATION	LUBE CODE
1	Contact surfaces of release arm and left side frame.	G
2	Contact surfaces of paper selection lever and paper release arm.	G
3	Contact surfaces of left side frame and paper thickness setting lever.	G
4	Guide shaft and front stay.	O
5	Contact surfaces of front pressure rollers and roller holder.	G
6	Contact surface of roller base and roller drive gear.	G
7	Contact surface of roller base and roller idle gear.	G
8	Contact surface of tractor drive shaft and tractor side frames.	G
9	Slide gear stud of left side frame.	G
10	Contact surface of LF gear stud and LF gear.	G
11	Contact surface of guide shaft and left side frame.	G
12	Contact surface of paper selection lever and platen shaft.	G
13	Contact surface of paper selection lever and U-ring.	G
14	Contact surface of LF gear and LF wave washer.	G
15	Contact surface of roller base and tractor drive gear.	G
16	Contact surface of roller drive gear and tractor drive gear.	G

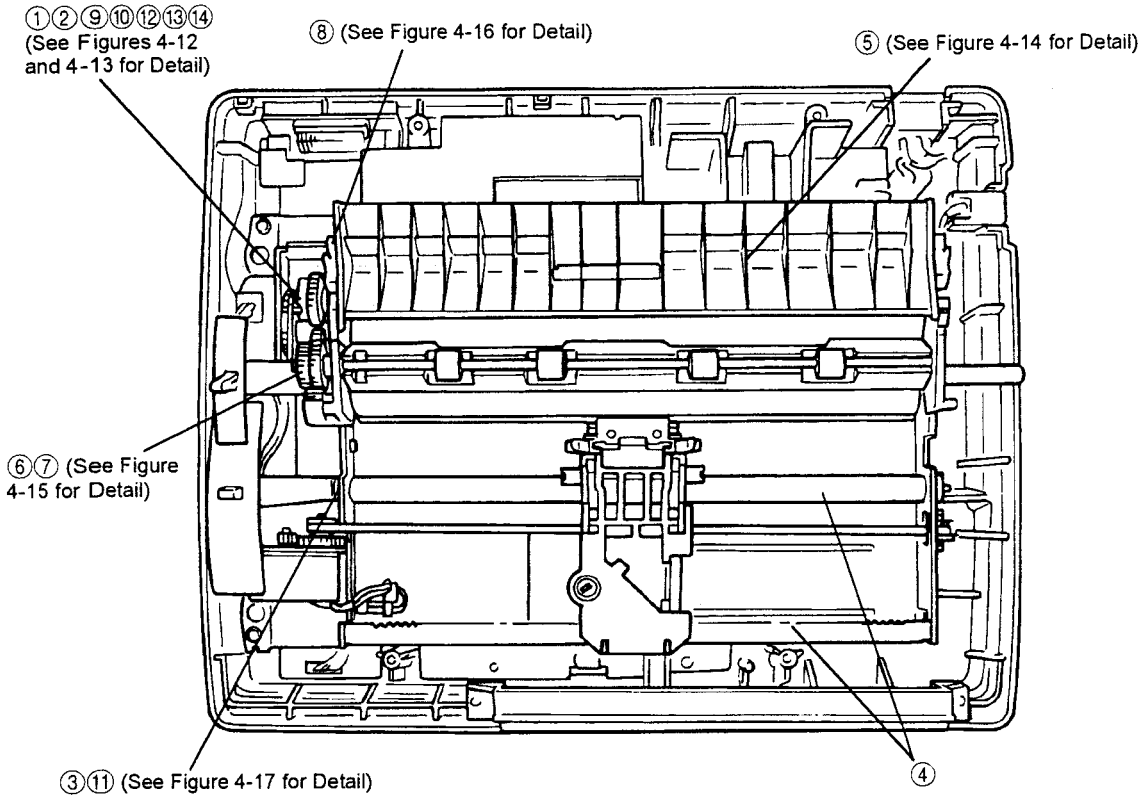


Figure 4-13 Mechanical Assembly Lubrication Points

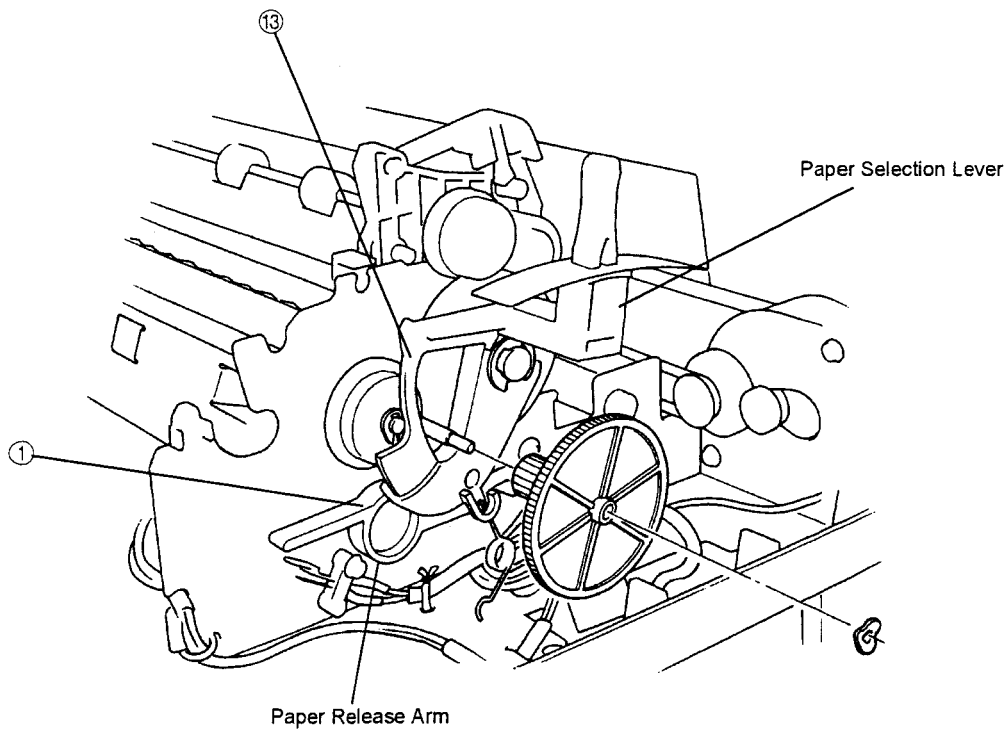


Figure 4-14 Paper Selection Lever Lubrication Points

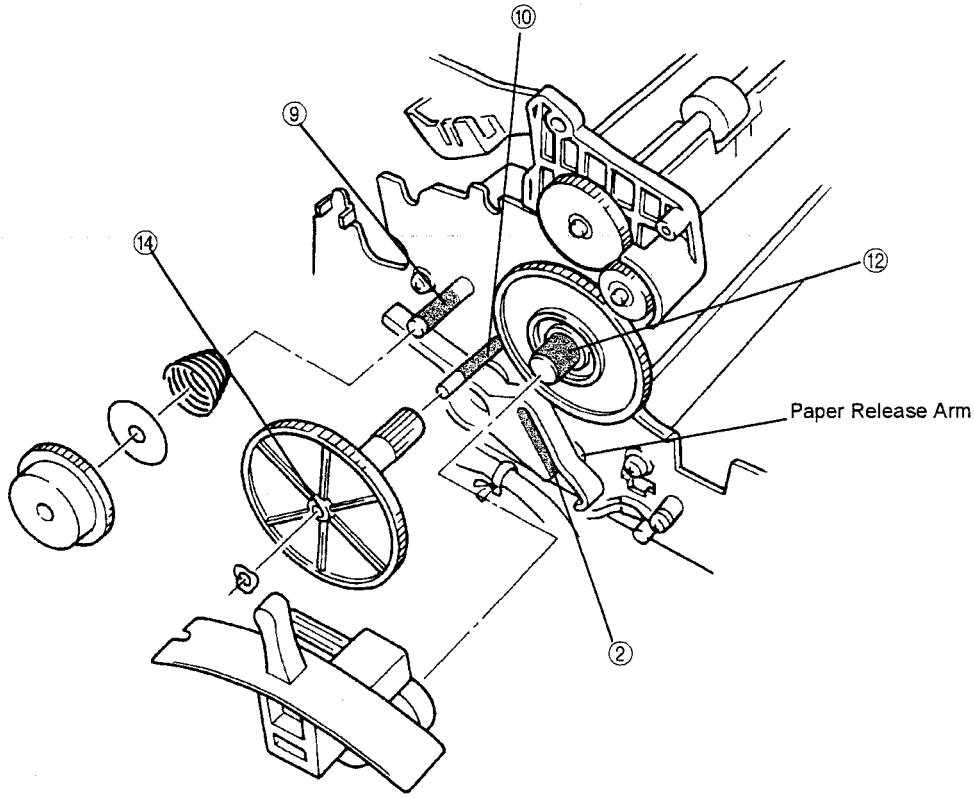


Figure 4-15 Paper Feed Assembly Lubrication Points

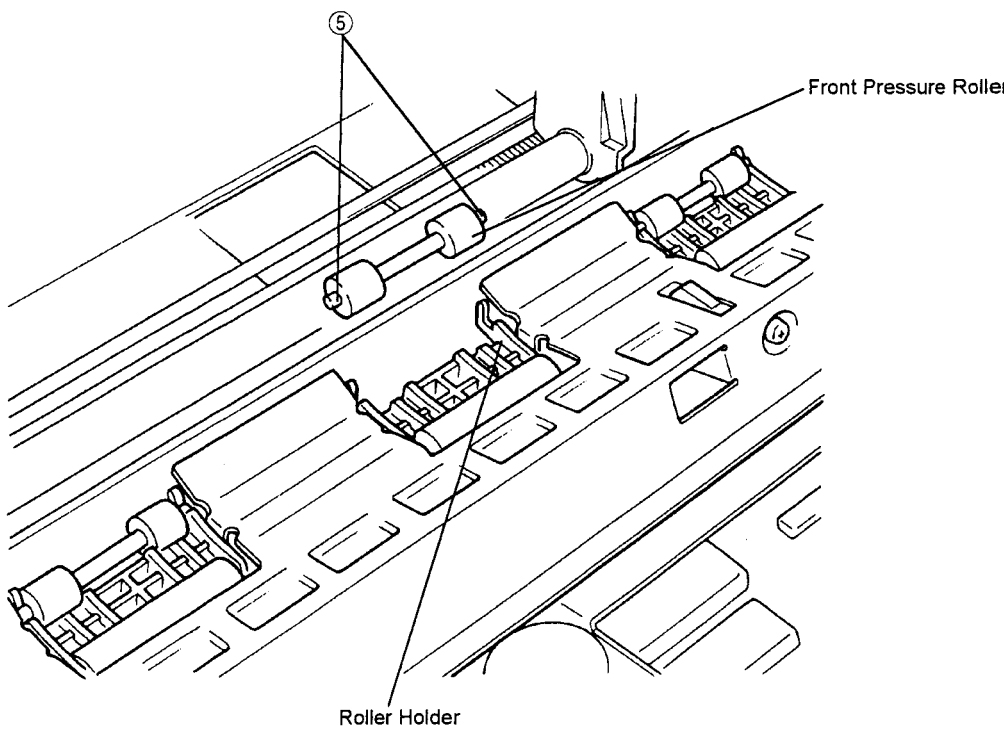


Figure 4-16 Paper Guide Assembly Lubrication Points

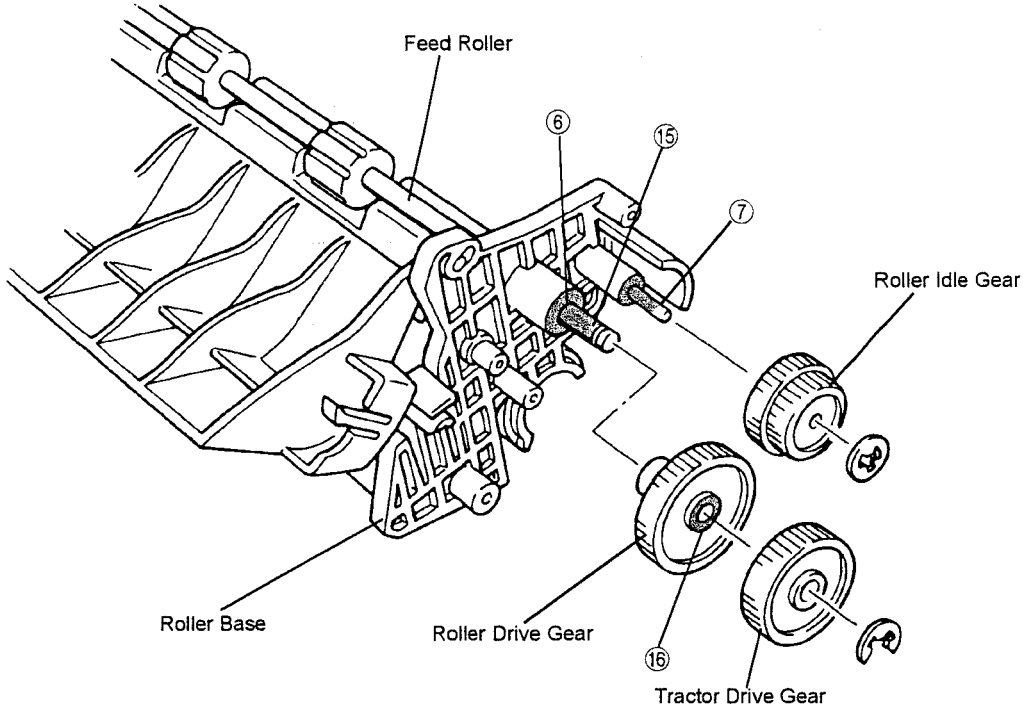


Figure 4-17 Feed Roller Unit Lubrication Points

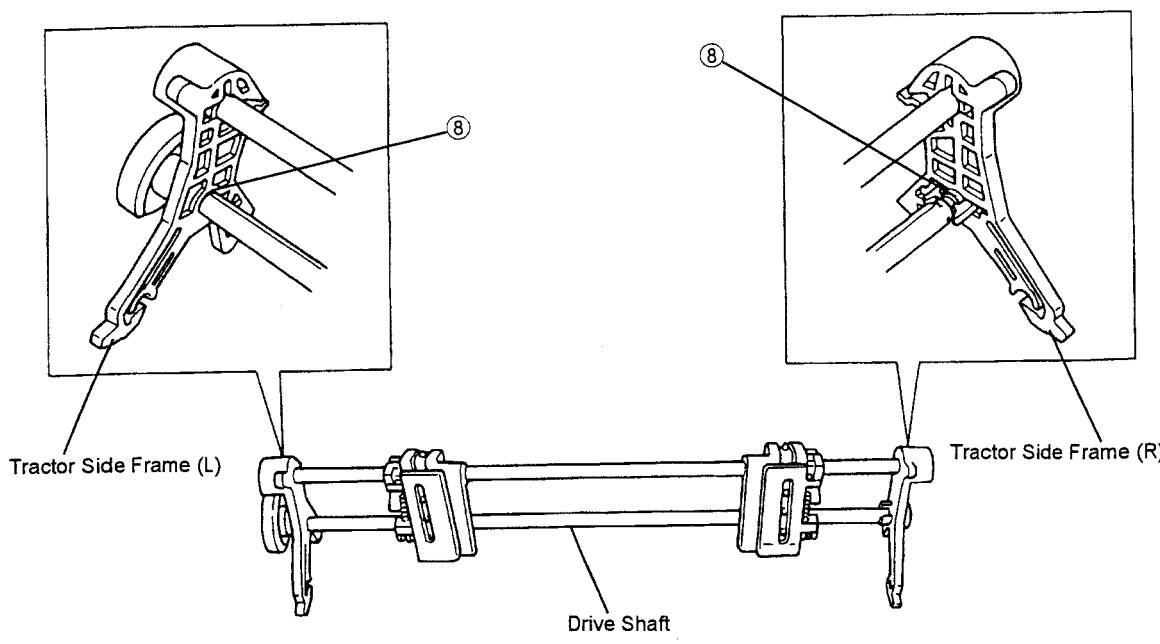


Figure 4-18 Tractor Unit Lubrication Points

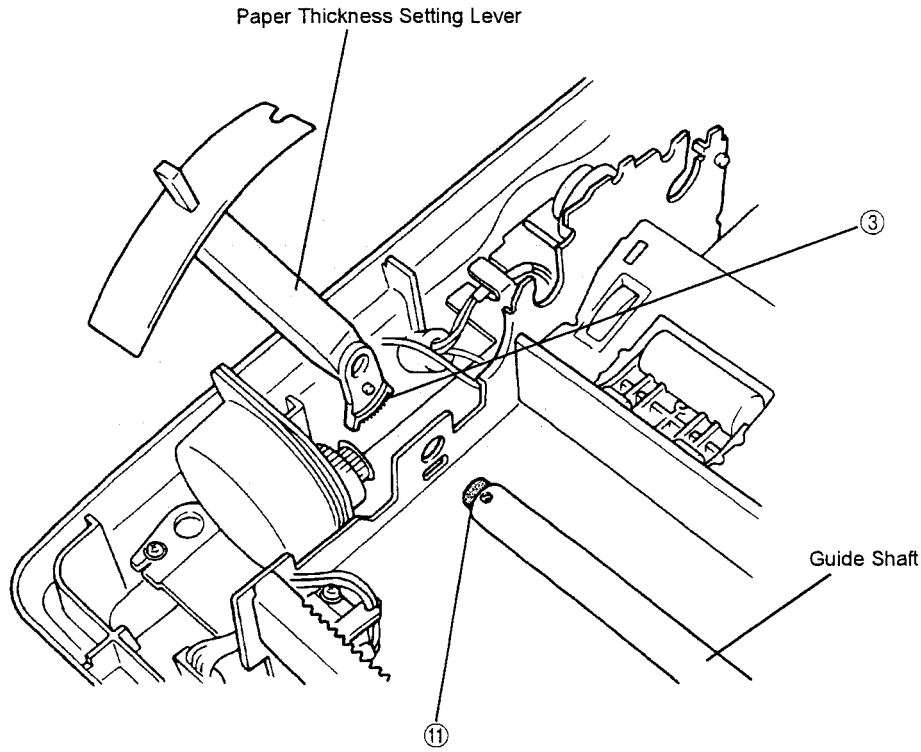


Figure 4-19 Paper Thickness Setting Lever Lubrication Points

Table 4-2 Lubrication Points for Optional Sheet Feeder

DESIGNATION	LOCATION	LUBRICATION CODE
17	Contact surface of pressure roller and back-up piece.	G
18	Contact surface of clutch subasembly and middle disk assembly.	G

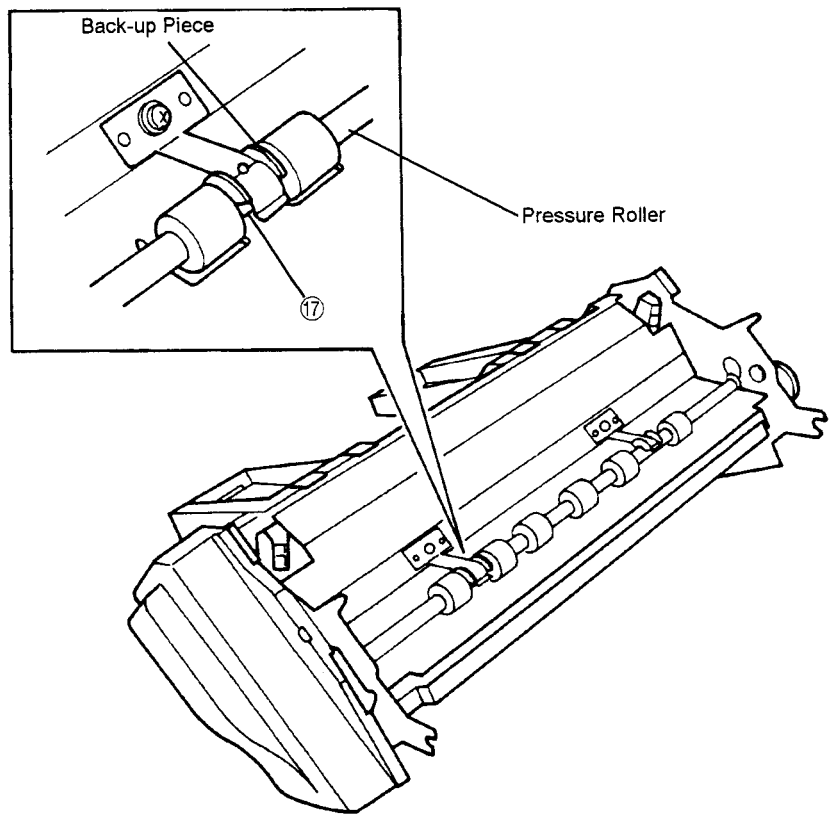


Figure 4-20 Lubrication Points of Sheet Feeder – Pressure Roller

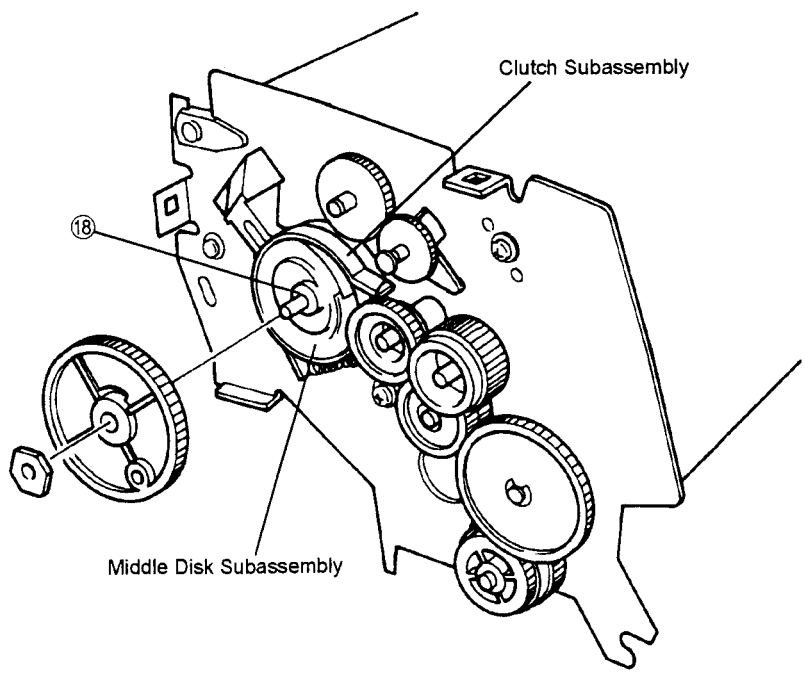
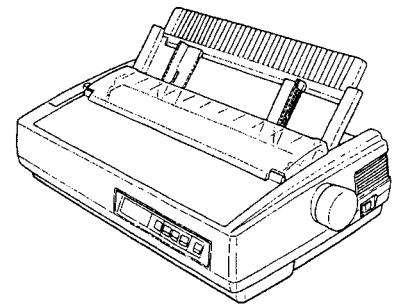


Figure 4-21 Lubrication Points of Sheet Feeder – Clutch Subassembly

Section 5

Troubleshooting



This section contains troubleshooting information that will help identify a malfunction in the printer.

Troubleshooting aids include printer self-tests, error codes, test points, and troubleshooting flowchart. Error codes appear on the control panel's lamp (SELECT, Courier LED, Draft Gothic LED and Bold P.S. LED). These codes identify malfunctions within the RS-232C interface, electronic circuits, and mechanical assemblies. The other lamps also indicate status messages (see Section 3) that identify minor printer problems (paper out, etc.). Test points are provided to check power supply voltages, and a troubleshooting flowchart provides a checklist for repairing critical printer problems.

When a malfunction has been isolated and all appropriate actions taken, the print tests described in Section 2 should be run to assure that the printer operates properly.

ERROR CODES

The SELECT, Courier LED, Draft Gothic LED and Bold P.S. LED lamps indicate error codes to help diagnose printer malfunctions.

Table 5-1 lists each indication and its definition. If a significant error occurs, diagnose the error and turn off the printer. Then refer to this section for remedial action.

Table 5-1 Significant Errors

LAMP INDICATION				ERROR DEFINITION
Bold P.S. LED	**Draft Gothic LED**	**Courier LED**	**SEL**	
		●	◎	Check sum error in firmware ROM.
	●		◎	Internal-RAM read/write error.
	●	●	◎	External-RAM read/write error.
●			◎	Check sum error in EEPROM.
●		●	◎	Check sum error in CG ROM.
●	●		◎	RS-232C option board error.
●	●	●	◎	I/O port error.
		○	◎	Home position detecting error.
	○		◎	S/F eject error at power up.
	○	○	◎	Spacing motor control error.
○			◎	Firmware error.
○		○	◎	Power-down error.
○	○		◎	RS-232C option board time out error.
○	○	○	◎	RS-232C option board illegal data receive error.

● Light on
○ Blinking (1 Hz)
◎ Blinking (4 Hz)

POWER SUPPLY TEST POINTS

When the power supply seems to be defective, check the output voltage first of all. CN2 on the power board allow you to check the +5 V and +34 V outputs.

> **WARNING**
>
> Dangerous voltage exists on the power supply connector CN1. Make sure you are familiar with the locations of the power supply connectors CN1 and CN2 before checking voltages.

PSC POWER (C): 808-891154-313-B

Use the following procedure to check the voltage.

1. To check +5 V output voltage, connect a positive lead to pin 1 and negative lead to pin 2.
2. To check +34 V output voltage, connect a positive lead to pin 5 or 6 and negative lead to pin 3 or 4.

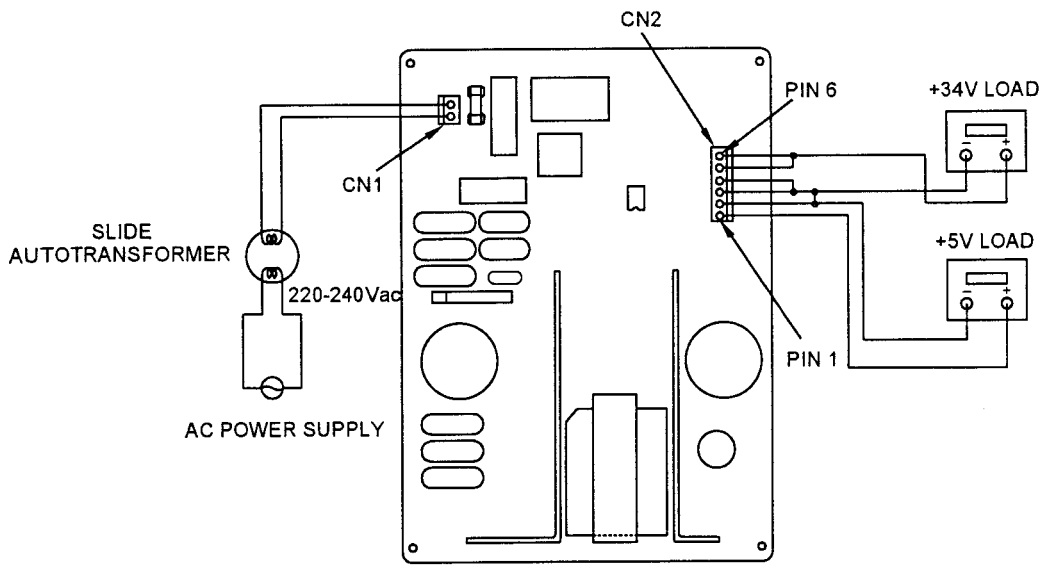


Figure 5-1 Output Voltage Check of PSC POWER (C) — GRP 313

SPECIFIC TROUBLESHOOTING PROCEDURES

The following flowcharts give troubleshooting procedures for these printer problems.

- Power lamp does not light.
- Carrier does not initialize.
- Control panel buttons do not function properly.
- Control panel lamps do not function properly.
- Self-test printout is abnormal.
- On-line printing using the serial interface is abnormal.
- On-line printing using the parallel interface is abnormal.
- PSC POWER (C) - GRP313 is faulty.

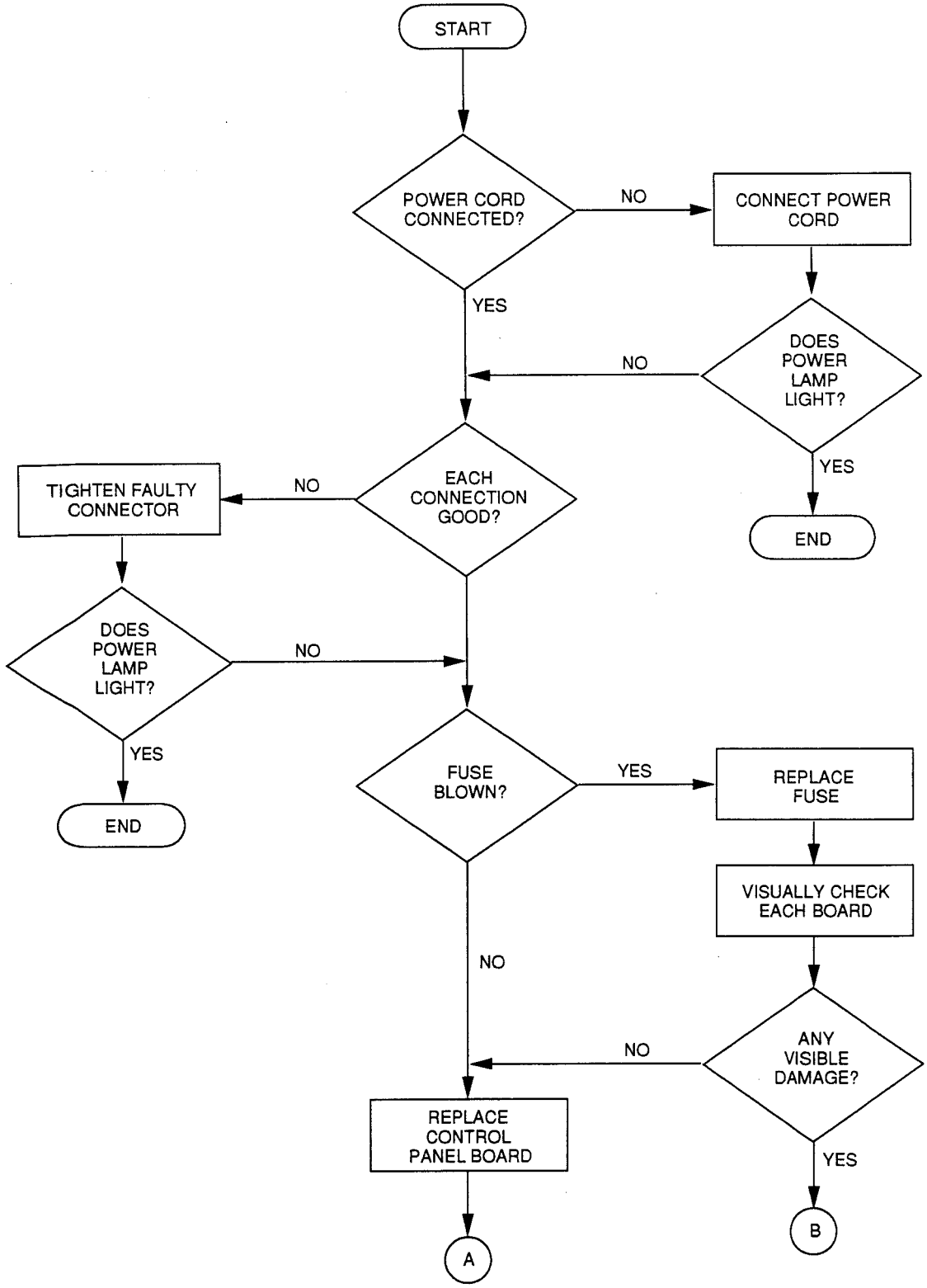


Figure 5-2 Power Lamp Does Not Light (1 of 2)

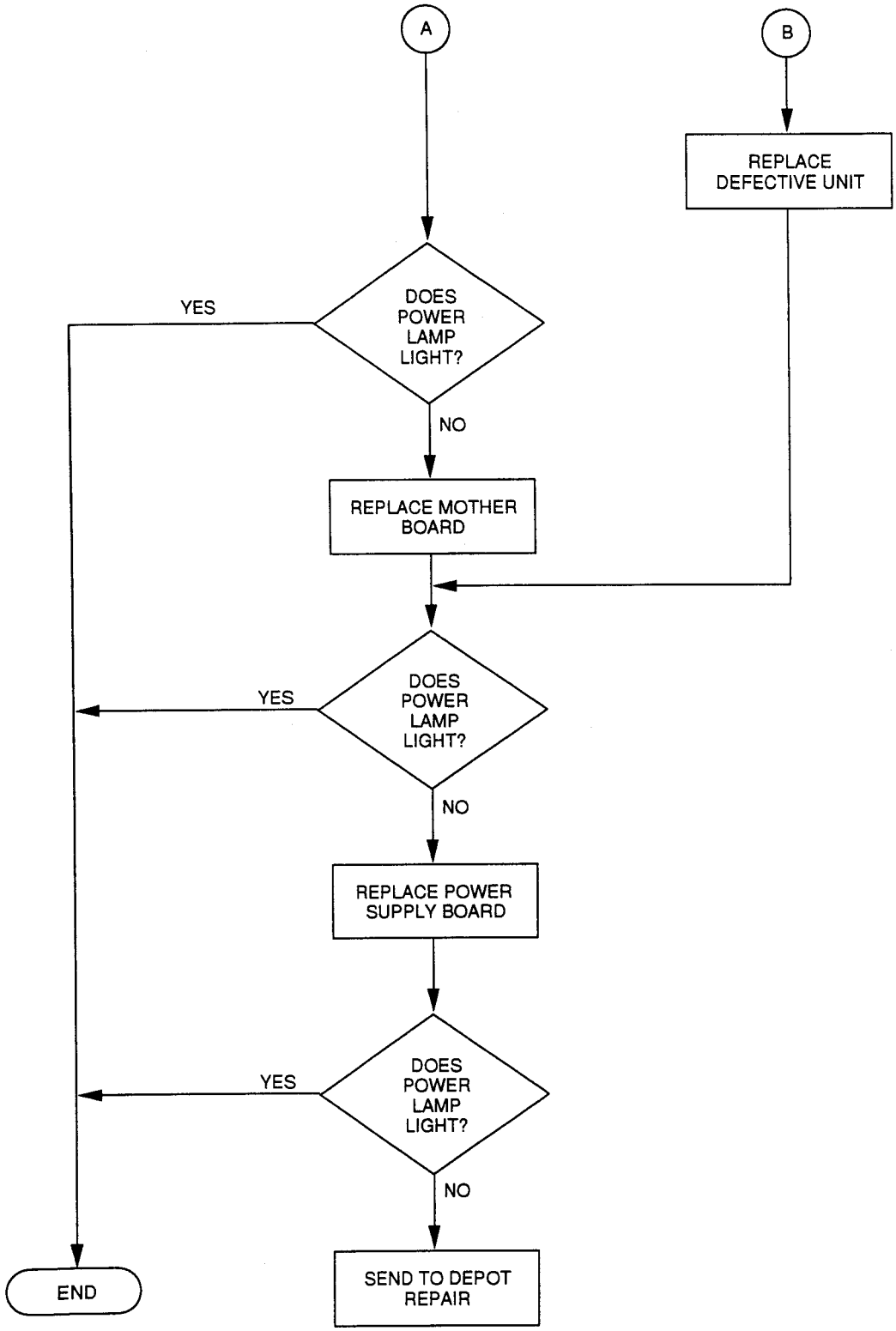


Figure 5-2 Power Lamp Does Not Light (2 of 2)

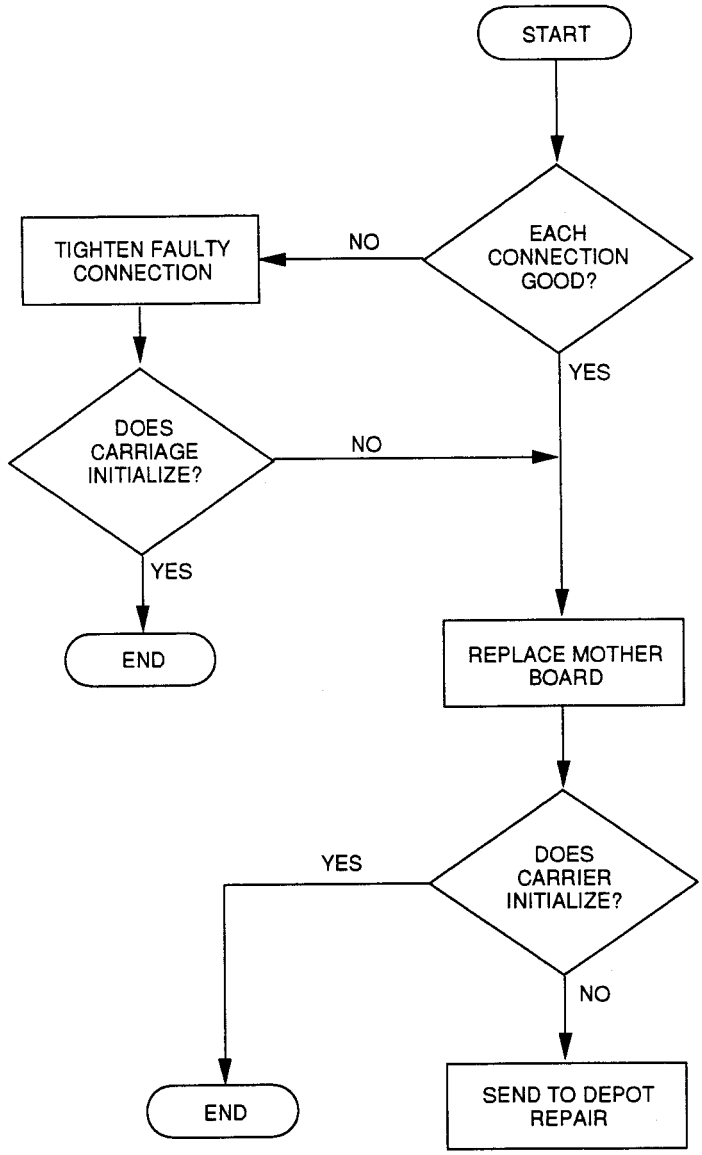


Figure 5-3 Carrier Does Not Initialize

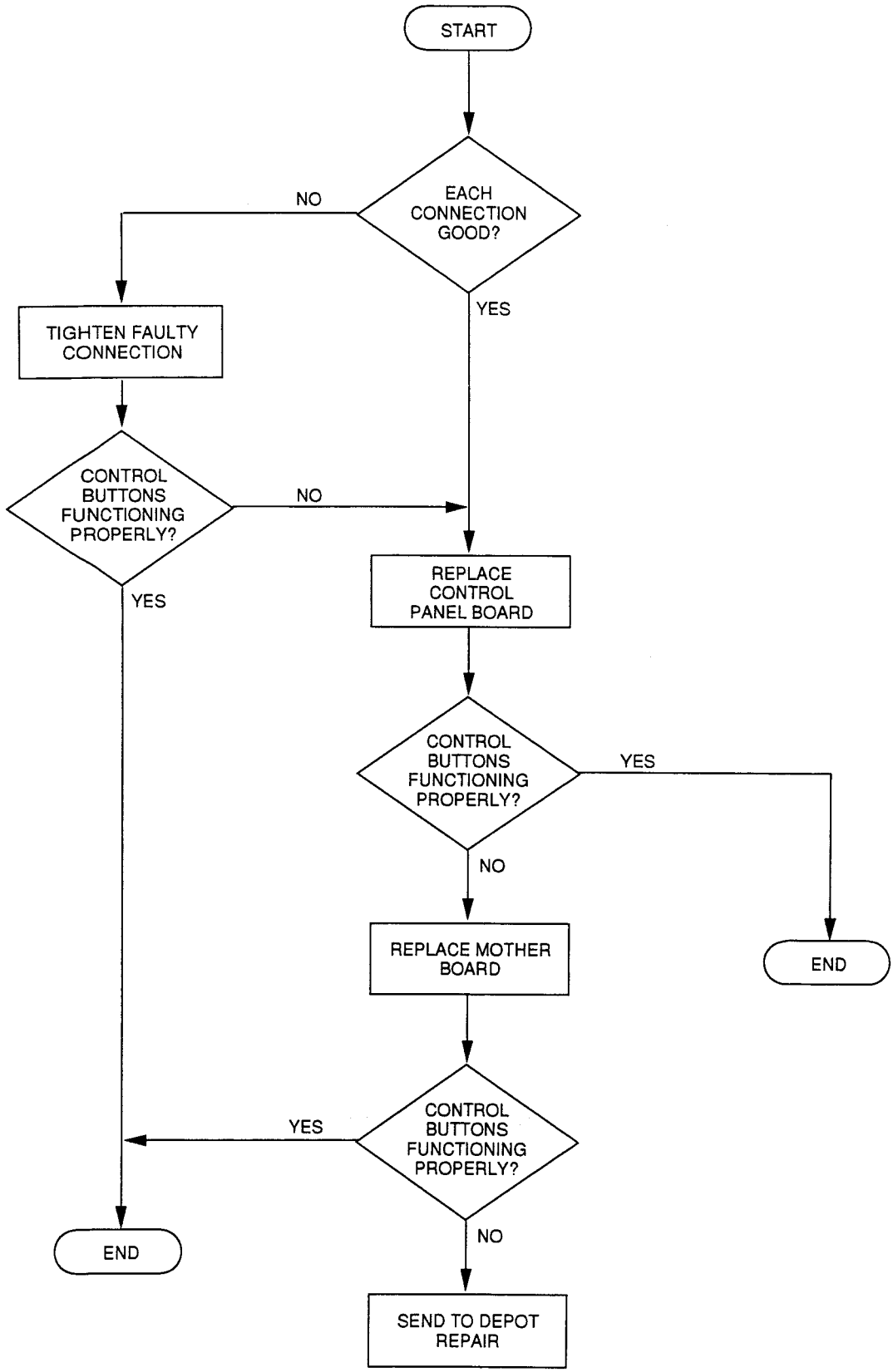


Figure 5-4 Control Panel Buttons Do Not Function Properly

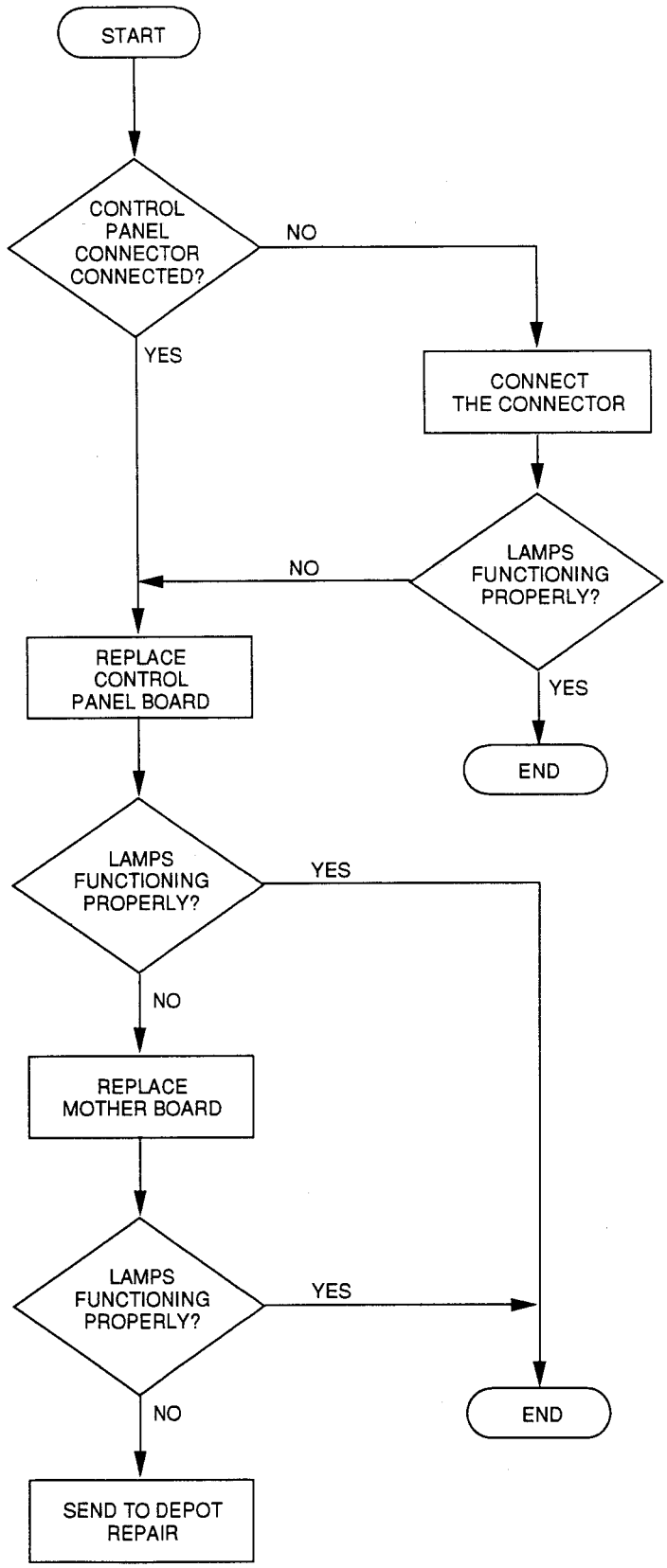


Figure 5-5 Control Panel Lamps Do Not Function Properly

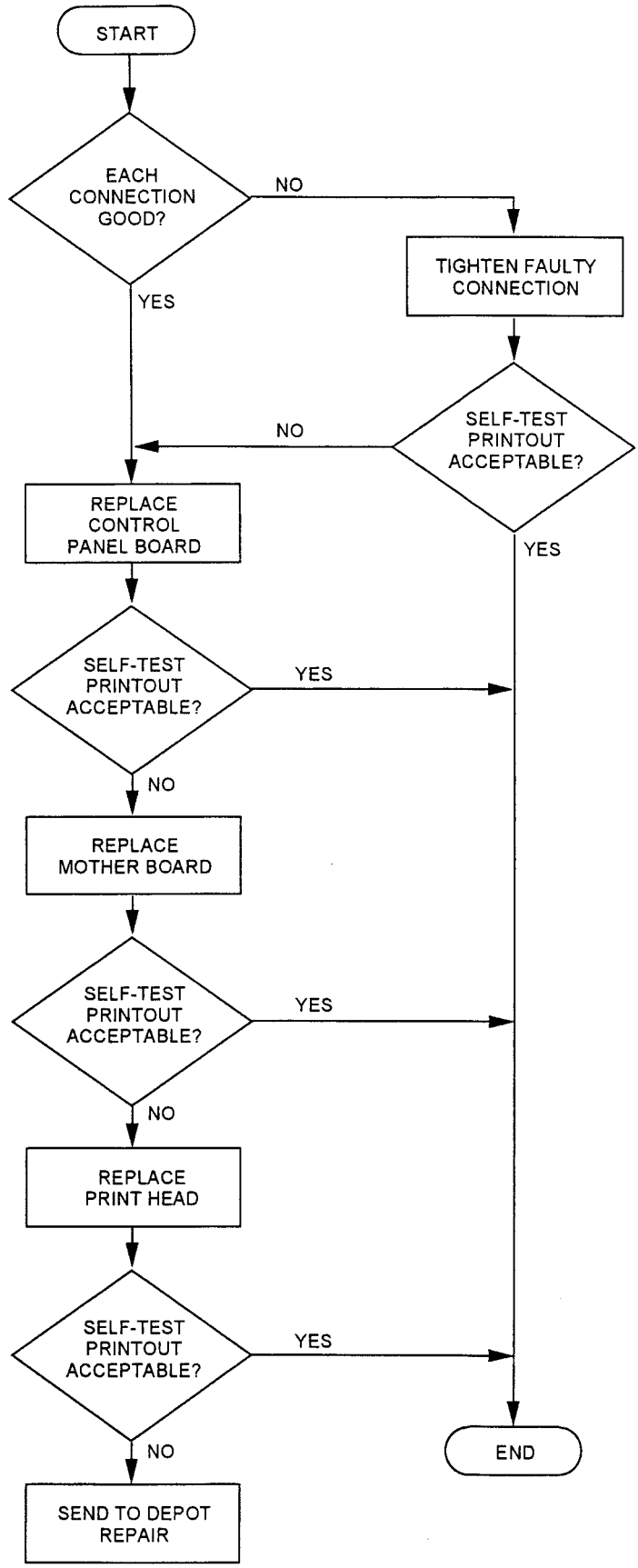


Figure 5-6 Self-Test Printout Is Abnormal

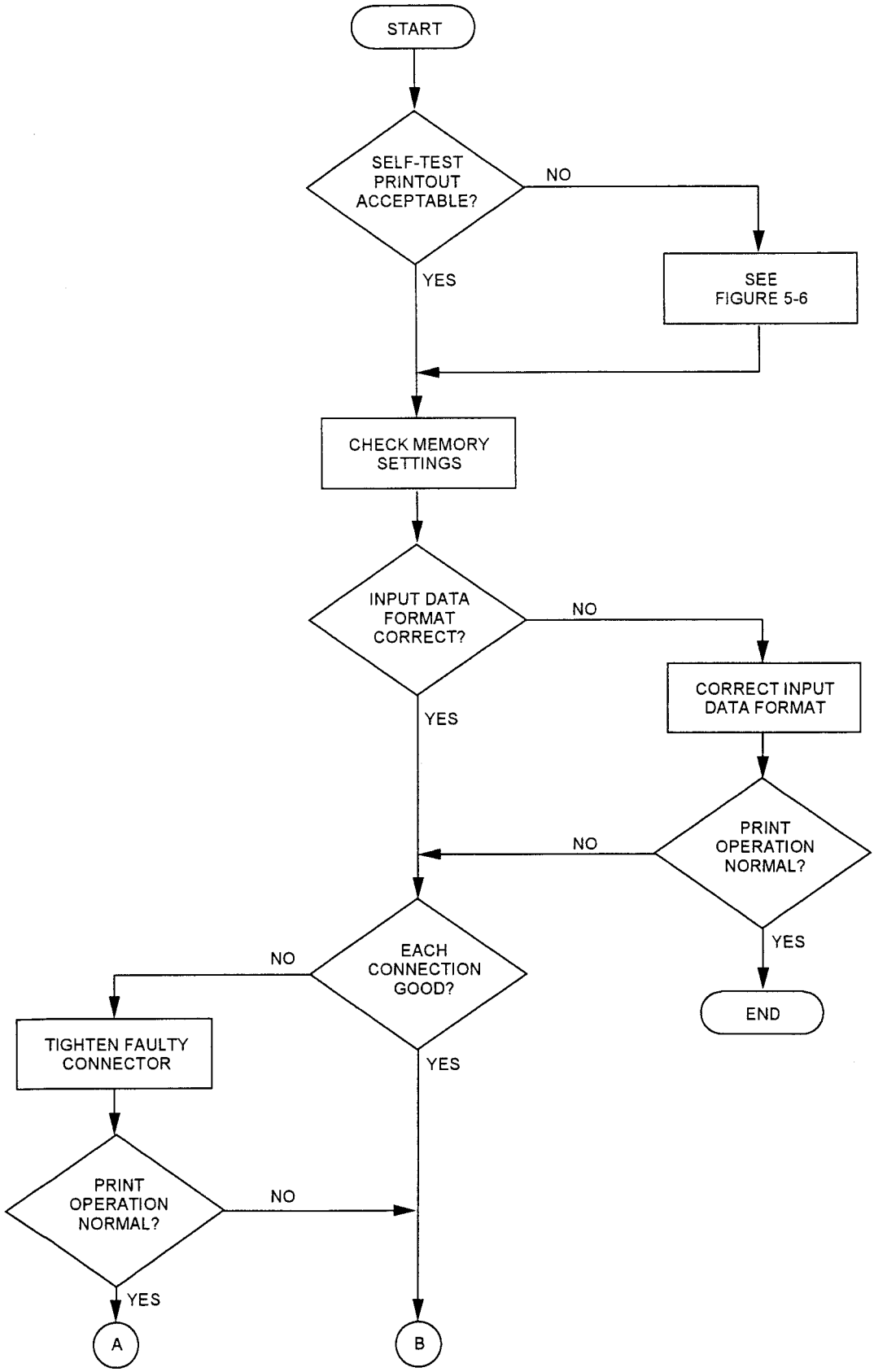


Figure 5-7 On-Line Printing Using the Parallel Interface Is Abnormal (1 of 2)

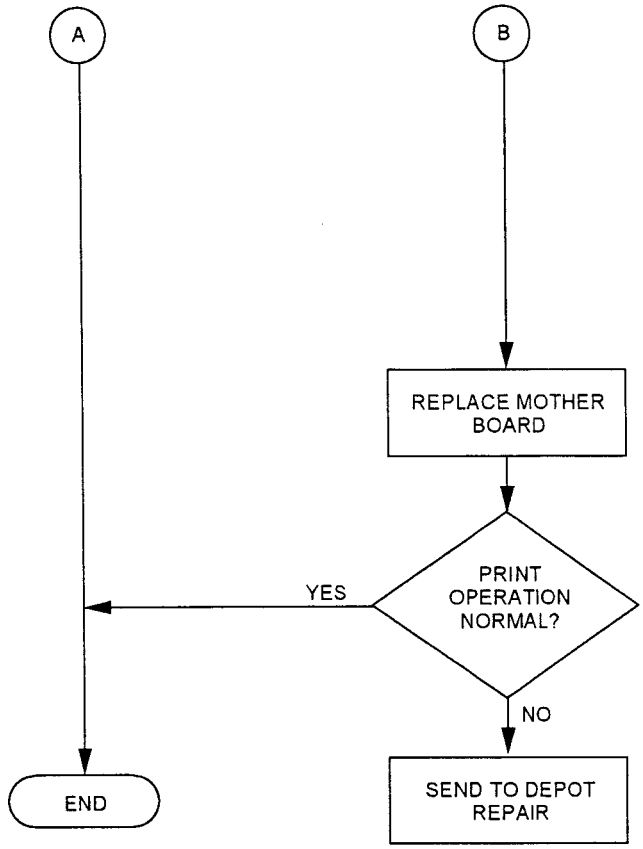


Figure 5-7 On-Line Printing Using the Parallel Interface Is Abnormal (2 of 2)

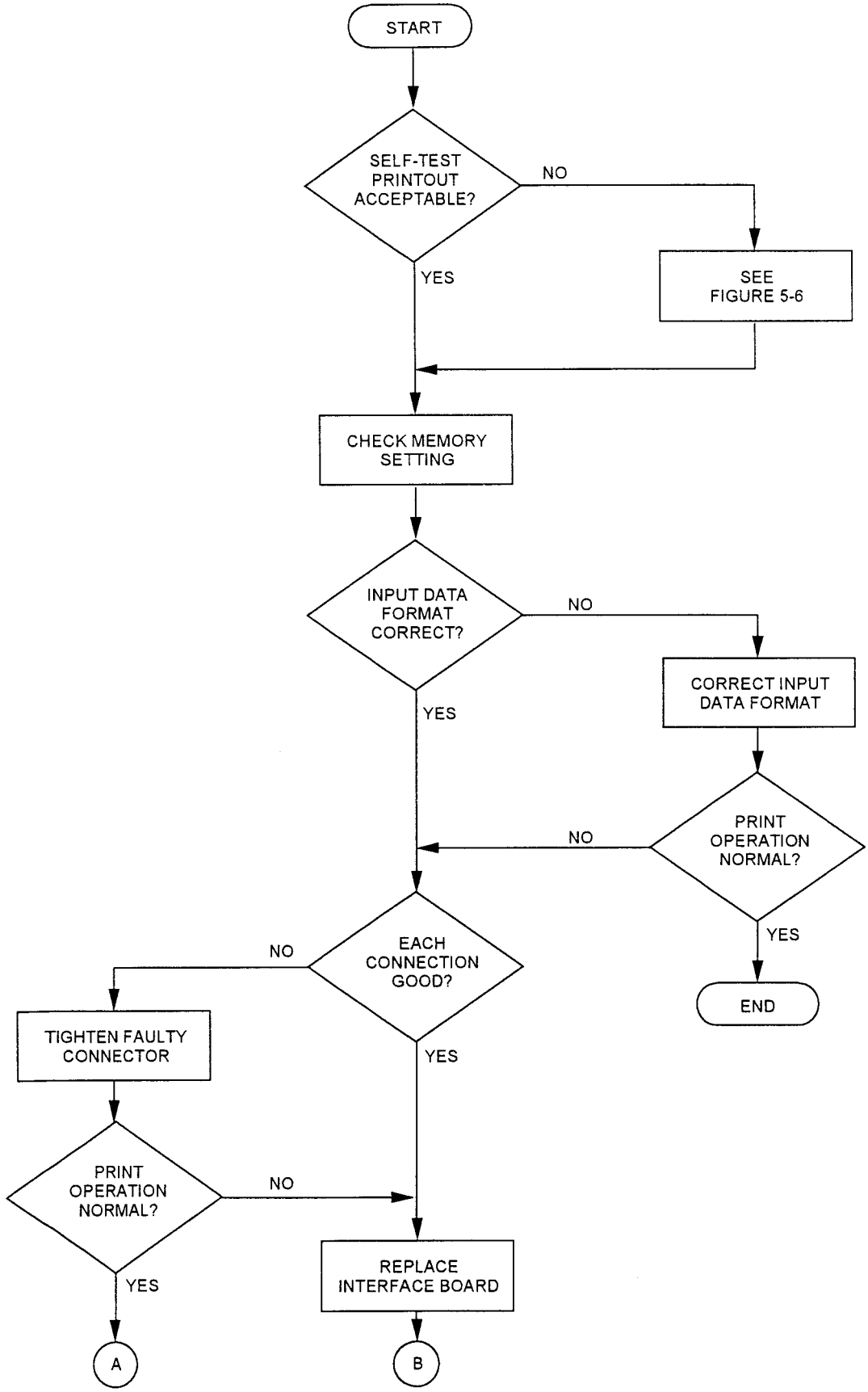


Figure 5-8 On-Line Printing Using the Serial Interface Is Abnormal (1 of 2)

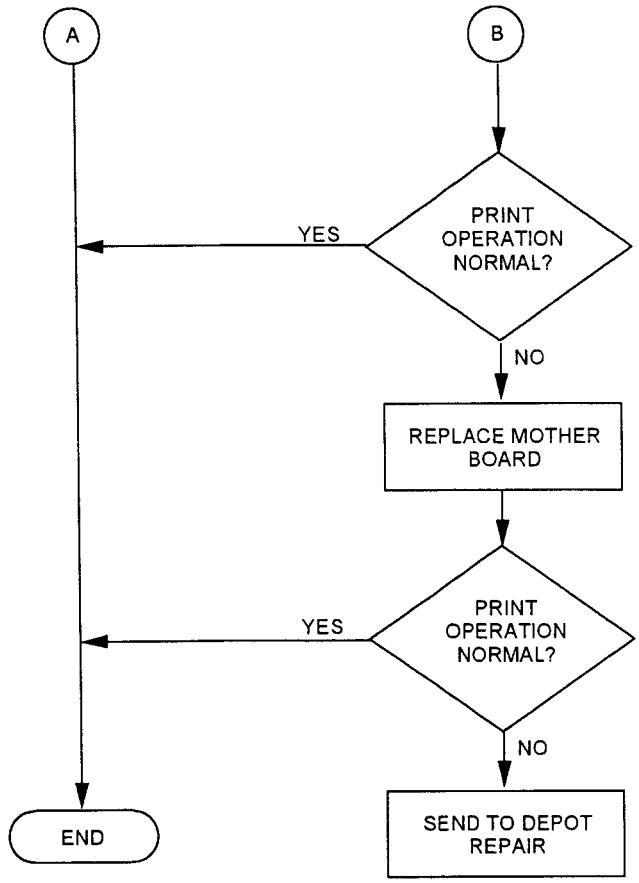


Figure 5-8 On-Line Printing Using the Serial Interface Is Abnormal (2 of 2)

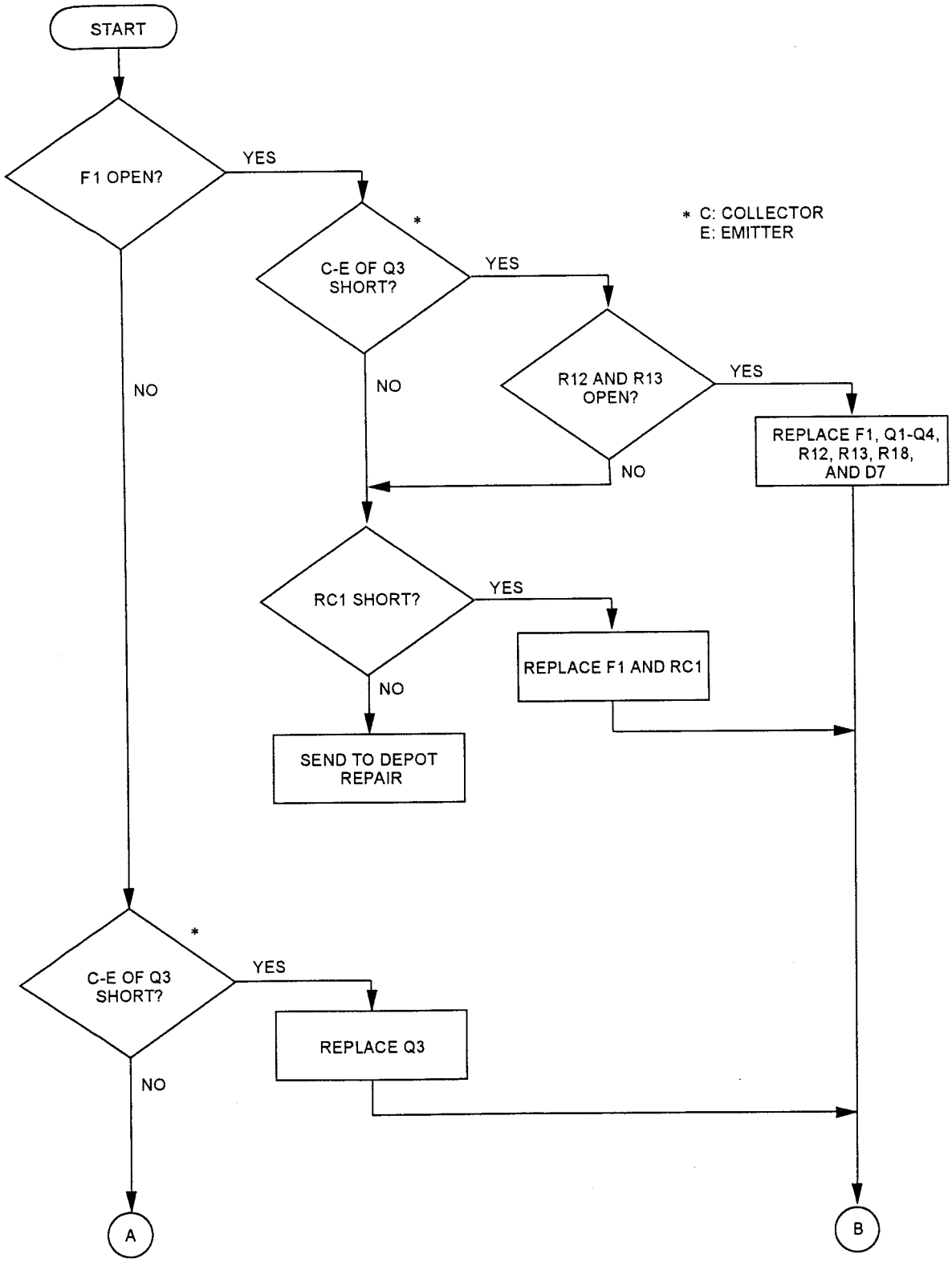


Figure 5-9 PSC POWER (C) - GRP 313 Is Faulty (1 of 2)

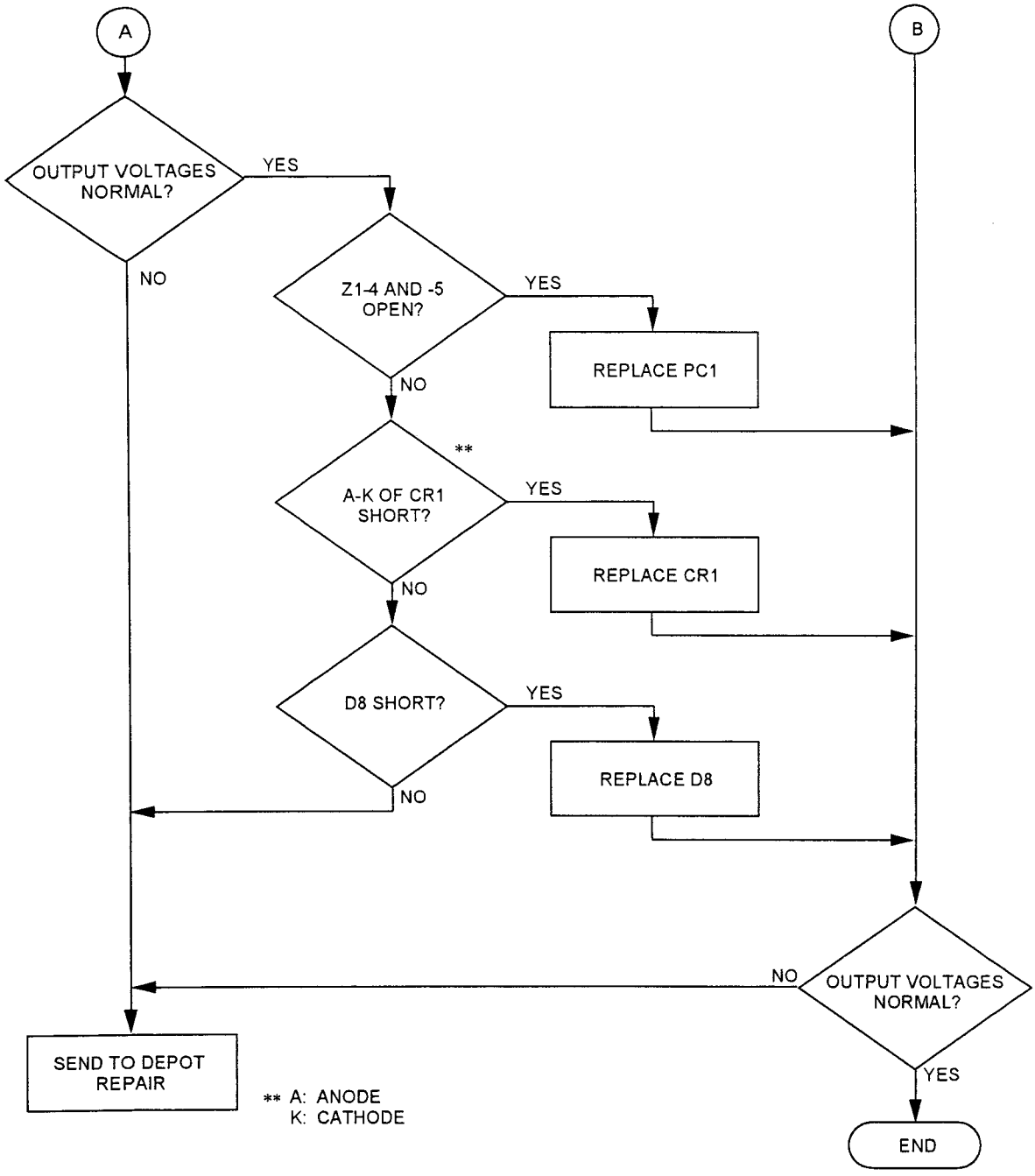
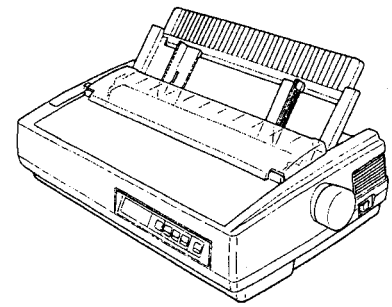


Figure 5-9 PSC POWER (C) - GRP 313 Is Faulty (2 of 2)

Section 6

Disassembly and Reassembly



This section contains step-by-step disassembly procedures for the P22Q/P32Q printers. Procedure is supported by a simplified disassembly illustration to facilitate removal. The user should also refer to Section 7 for detailed exploded view diagrams and parts lists for the printers.

GENERAL MAINTENANCE RULES

Observe the following rules when disassembling the printer.

> **WARNING**
>
> Always disconnect the power cord before performing any maintenance or adjustment procedure on the printer. Voltage is present inside the printer even after power is turned off. Only when the power cord is disconnected is all voltage removed.

- Turn off and unplug the printer.
- Remove all options.
- Observe antistatic precautions when handling printed circuit boards. When removing circuit boards, release static discharge by touching the printer's frame.
- Do not disassemble the printer into parts that are smaller than those specified in the procedure.
- All screws are Phillips head, unless otherwise specified.
- Grasp a connector by its sides to remove it; do not pull on the wire harness that is attached to the connector.
- Perform the removal procedures in the sequence given.
- After completing reassembly, perform the printer self-tests (see Section 2). Then repeat all procedures leading to the discovery of the fault to verify that the printer is operating properly.

REQUIRED TOOLS

The following tools are required to remove or install printer parts:

- #2 Phillips screwdriver
- Flat-blade screwdriver
- Round-nose pliers
- Tweezers
- Feelers gauges

PRINTER DISASSEMBLY

The following subsections provide disassembly procedures.

Top Cover Assembly Removal

Follow these steps to remove the top cover assembly.

1. Open the top cover assembly.
2. Lift the left corner of the cover out of its recess (see Figure 6-1).
3 Lift the right corner of the cover out of its recess.
4. Remove the cover from the printer.

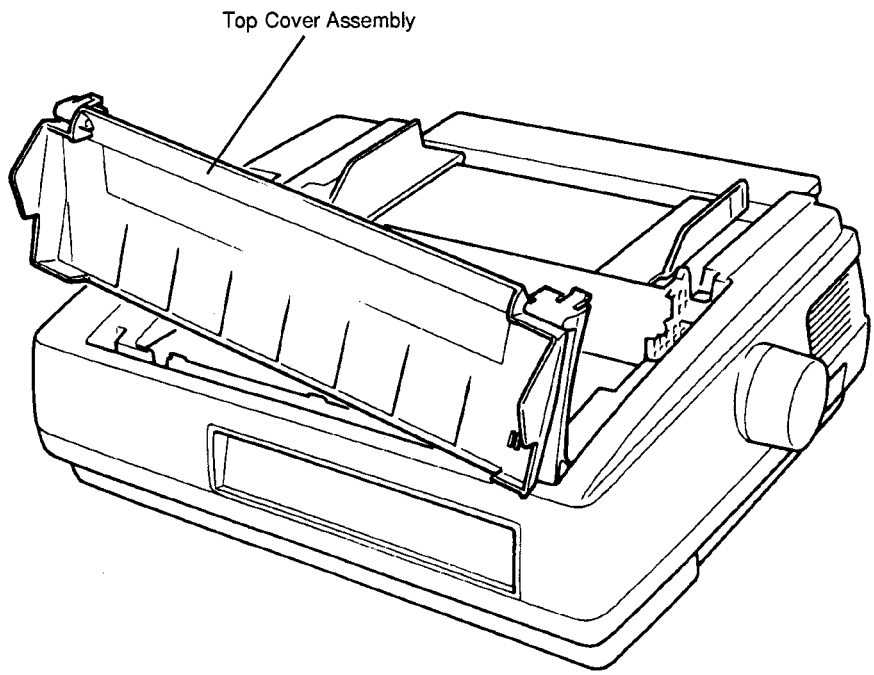


Figure 6-1 Top Cover Removal

Tractor Unit Removal

Follow these steps to remove the tractor unit.

1. Open the acrylic cover.
2. Open and hold the sheet guide upright, then lift it off the printer (see Figure 6-2).
3. Rotate the tractor unit upward, then lift it off the unit (see Figure 6-3).

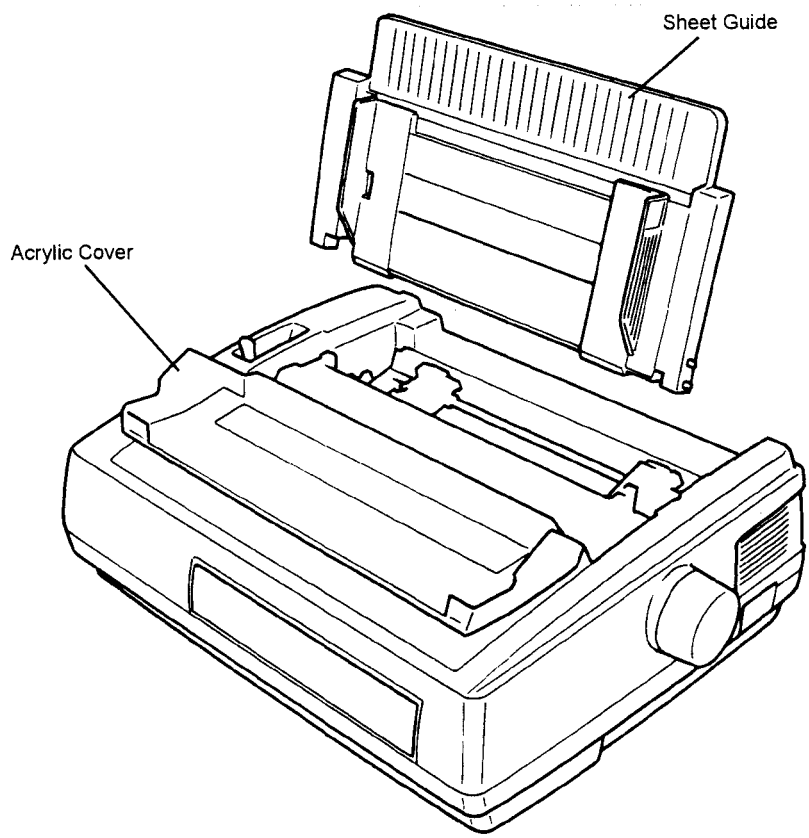


Figure 6-2 Sheet Guide Removal

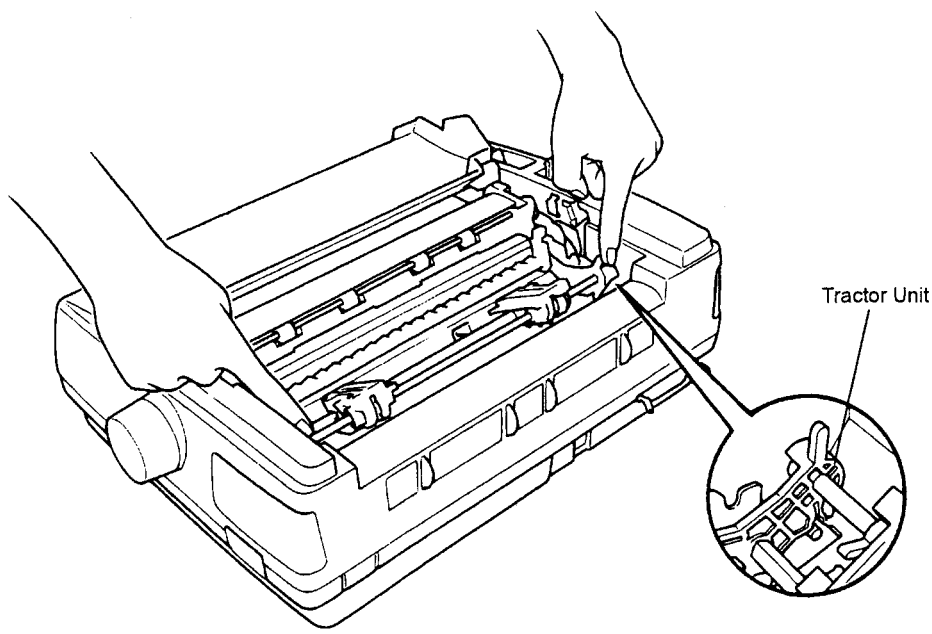


Figure 6-3 Tractor Unit Removal

Middle Cover Assembly Removal

To remove the middle cover assembly, first remove the tractor unit. Then proceed as follows.

1. Pull off the platen knob.
2. Open the top cover assembly.
3. Loosen the four screws holding the middle cover assembly in place (see Figure 6-4).
4. Lift the middle cover assembly straight up and off the printer.

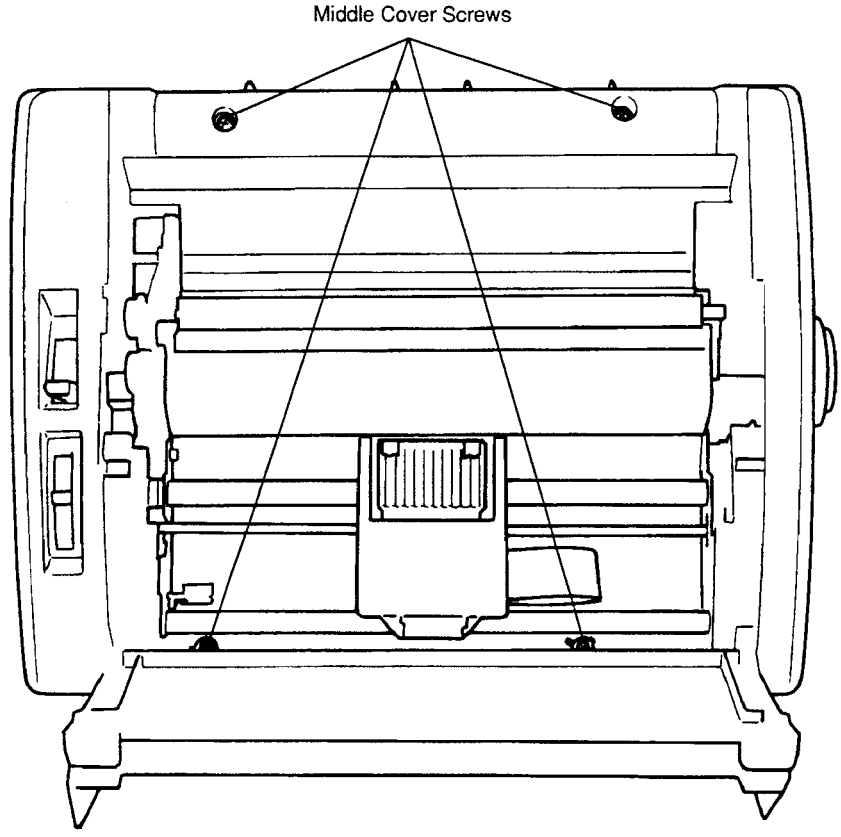


Figure 6-4 Middle Cover Assembly Removal

Control Panel Assembly Removal

To remove the control panel assembly, first remove the middle cover assembly. Then proceed as follows.

1. Unlock connector CN2 and remove the cable from the connector (see Figure 6-5).
2. Remove the screw holding the FG cable in place.
3. Remove the two screws holding the control panel in place. Remove the panel (see Figure 6-6).

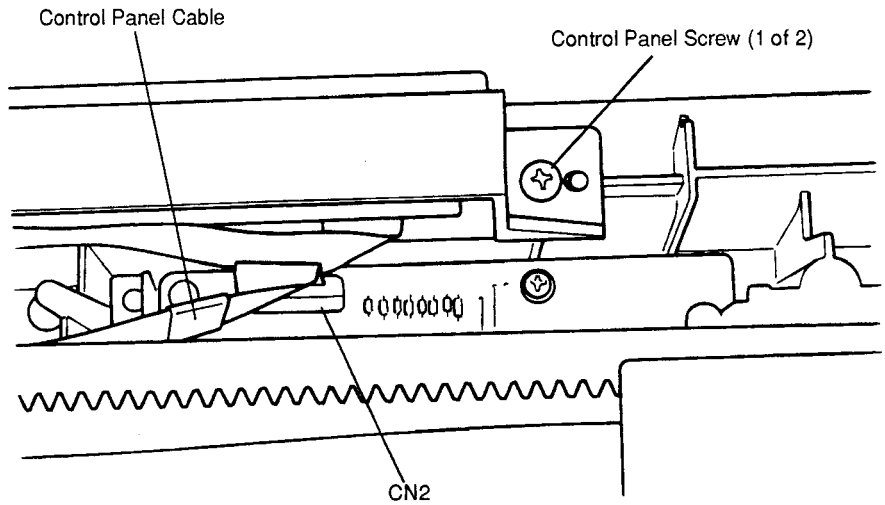


Figure 6-5 Control Panel Cable

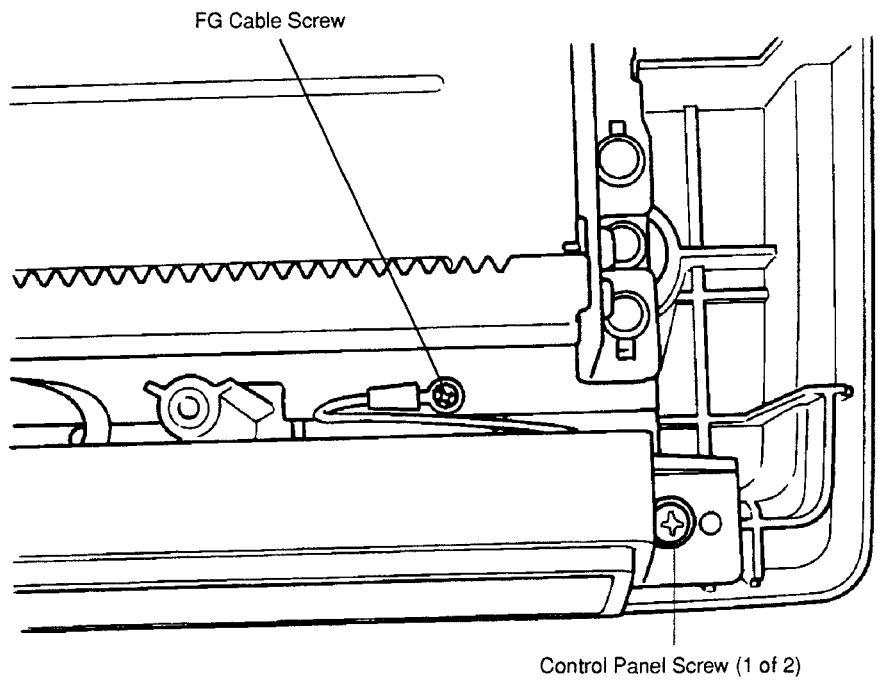


Figure 6-6 Control Panel Assembly

Feed Roller Unit Removal

Follow these steps to remove the feed roller unit.

1. Open the roller cover.
2. Press the left and right lock tabs while pulling the feed roller unit towards the front of the printer (see Figure 6-7).
3. Lift the feed roller unit up and off the printer.

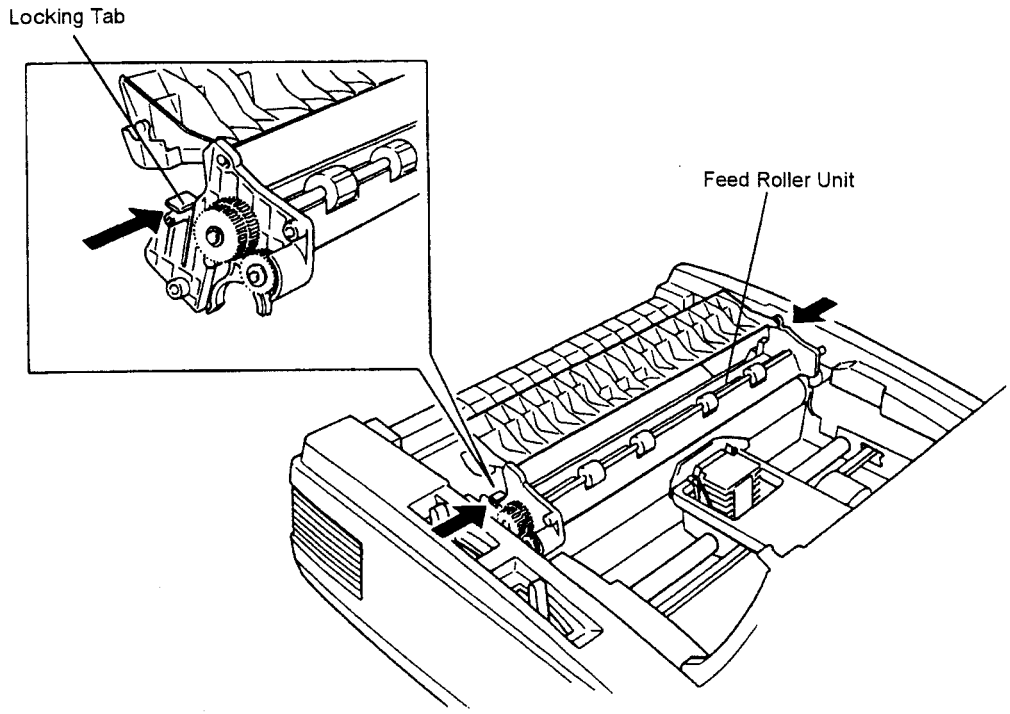


Figure 6-7 Feed Roller Unit Removal

Print Head Removal

Follow these steps to remove the print head.

1. Open the top and roller covers (see Figure 6-8).
2. Center the carrier.
3. Remove the ribbon cartridge.
4. Press outward on the left and right head clamps while lifting up on the print head (see Figure 6-9).
5. Lift the print head up and off the printer.

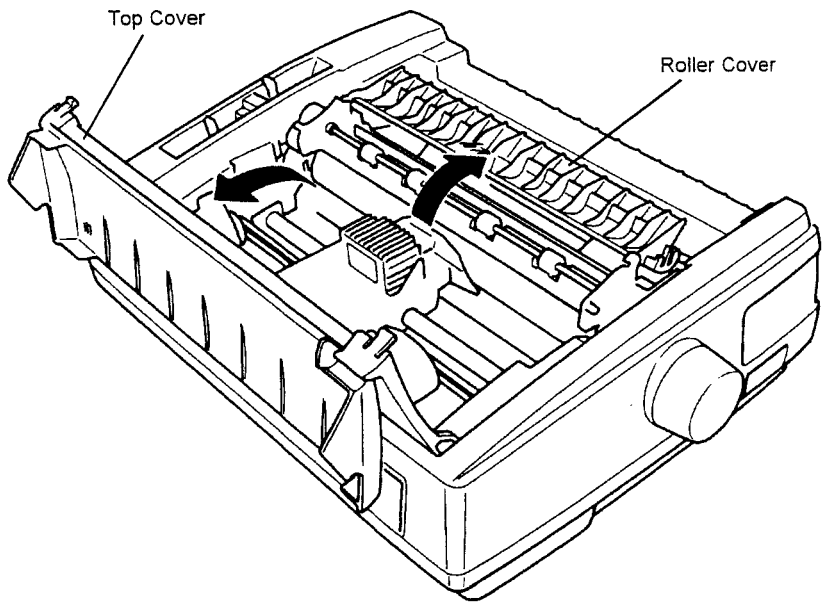


Figure 6-8 Top and Roller Covers

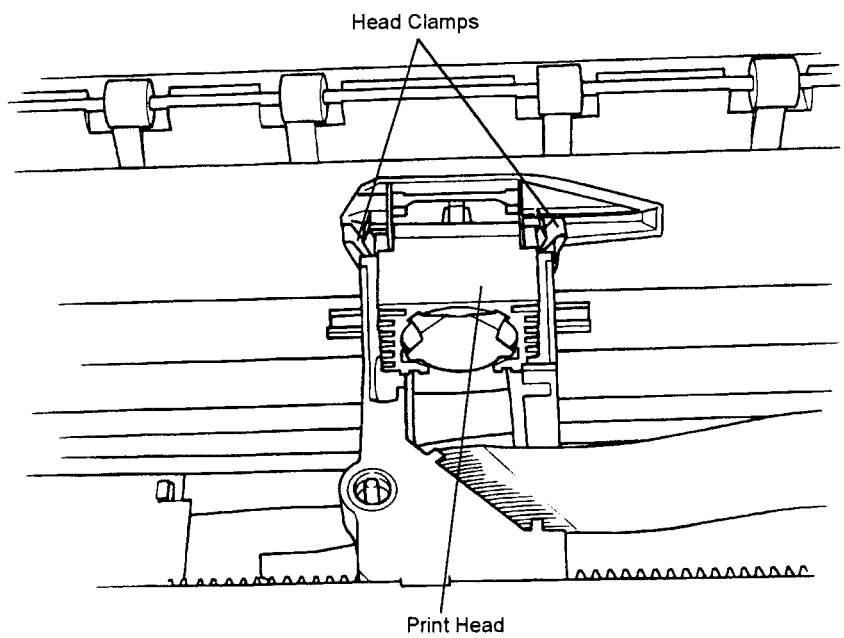


Figure 6-9 Print Head Removal

Card Holder and Print Mask Removal

To remove the card holder and print mask, first remove the print head. Then proceed as follows.

1. Remove the two screws holding the card holder in place (see Figure 6-10).
2. Lift the card holder off the carrier and out of the printer.
3. Release the two tabs of the print mask on the card holder (see Figure 6-11).
4. Pull the print mask out of the card holder.

NOTE

After reinstalling the card holder, adjust the card holder gap (see Section 4.)

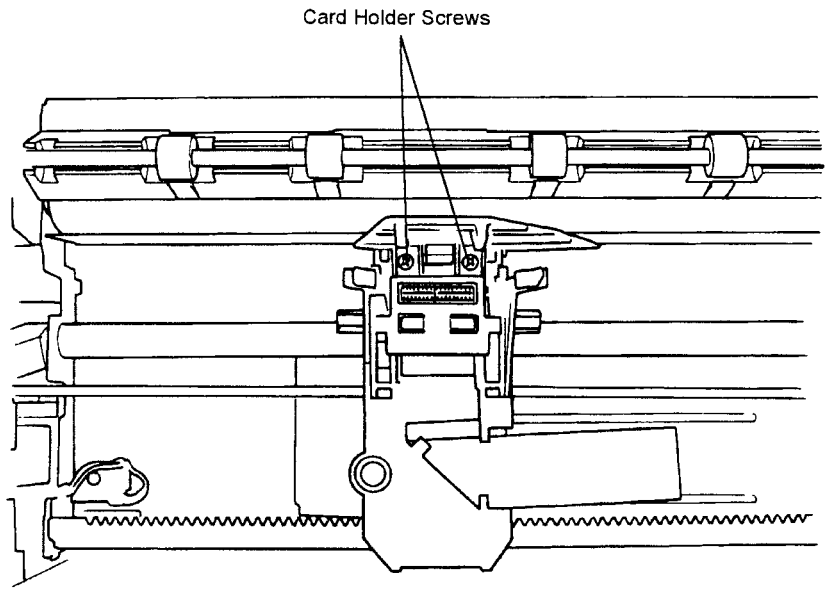


Figure 6-10 Card Holder Removal

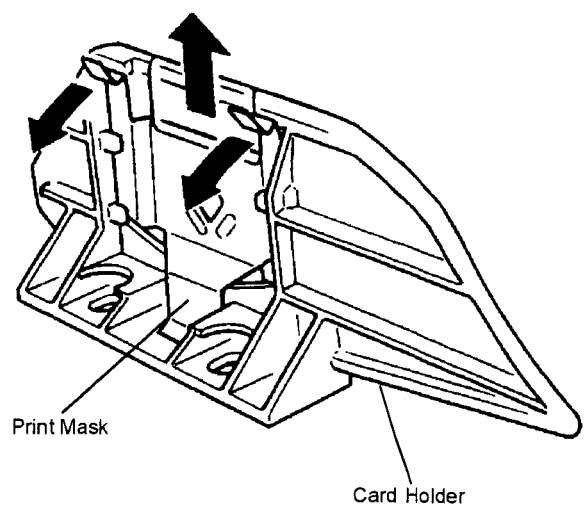


Figure 6-11 Print Mask Removal

Carrier Cable Assembly Removal

To remove the carrier cable assembly, first remove the

- print head and
- card holder.

Then proceed as follows.

1. Slide the carrier to the right.
2. Remove the carrier cable cover by removing the screw holding it in place. (see Figure 6-12).
3. Unlock connectors CN3 and CN4. Unplug the cables from the connectors.
4. Using a small flat-blade screwdriver, unlock the both ends of the CR FG plate (A). Remove the plate from the carrier (see Figure 6-13).
5. Carefully pull the left and right strips of the CR FG plate out of the carrier holes. Remove the plate from the carrier (see Figure 6-14).
6. Release the cables from the three cable clamps on the carrier (see Figure 6-15).
7. With a small flat-blade screwdriver, press the two locking tabs out as far as possible to release the connector from the carrier and lift the connector out of the printer (see Figure 6-16).

CAUTION

Do not press the tabs more than necessary. Excessive force may cause damage.

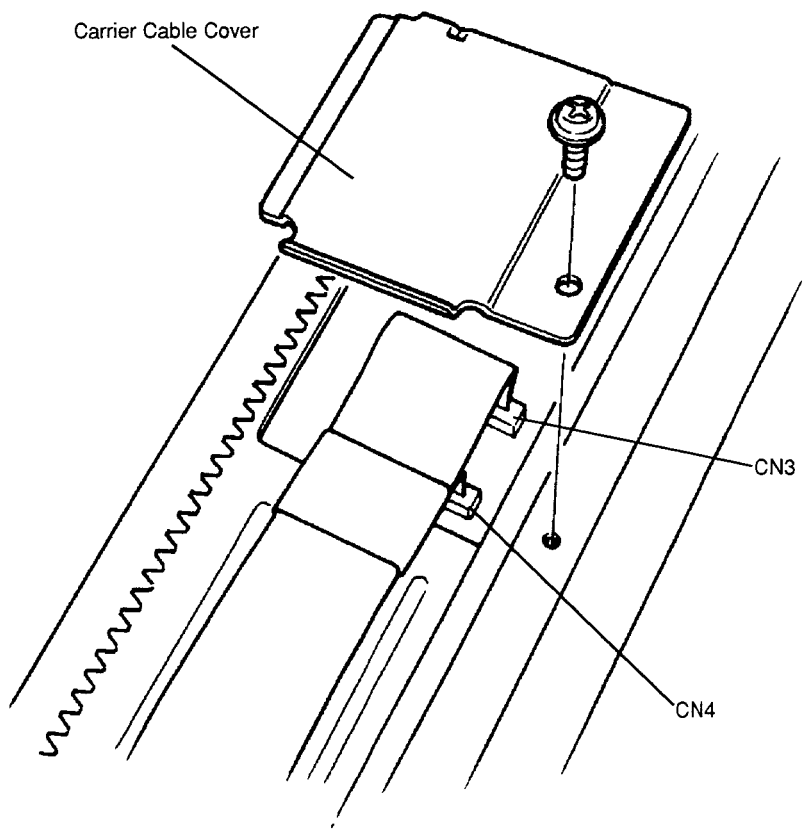


Figure 6-12 Carrier Cable Connectors

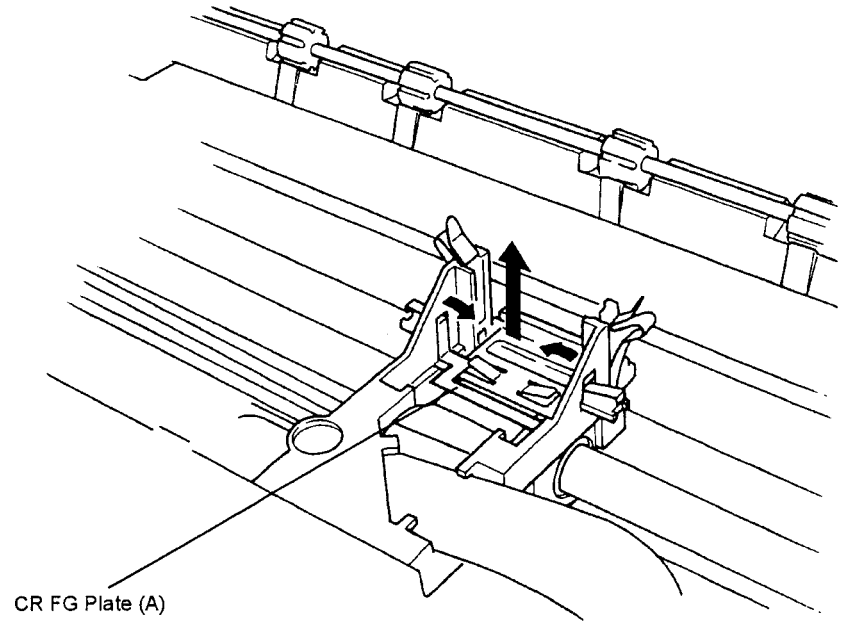


Figure 6-13 CR FG Plate (A) Removal

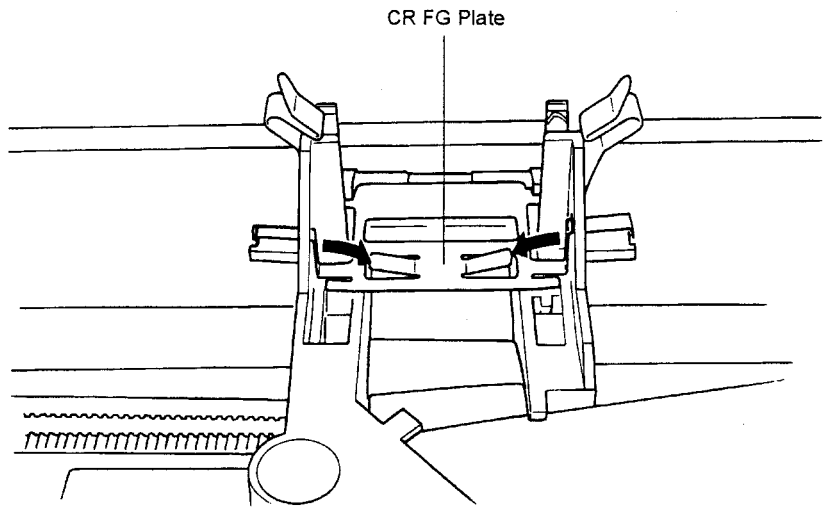


Figure 6-14 CR FG Plate Removal

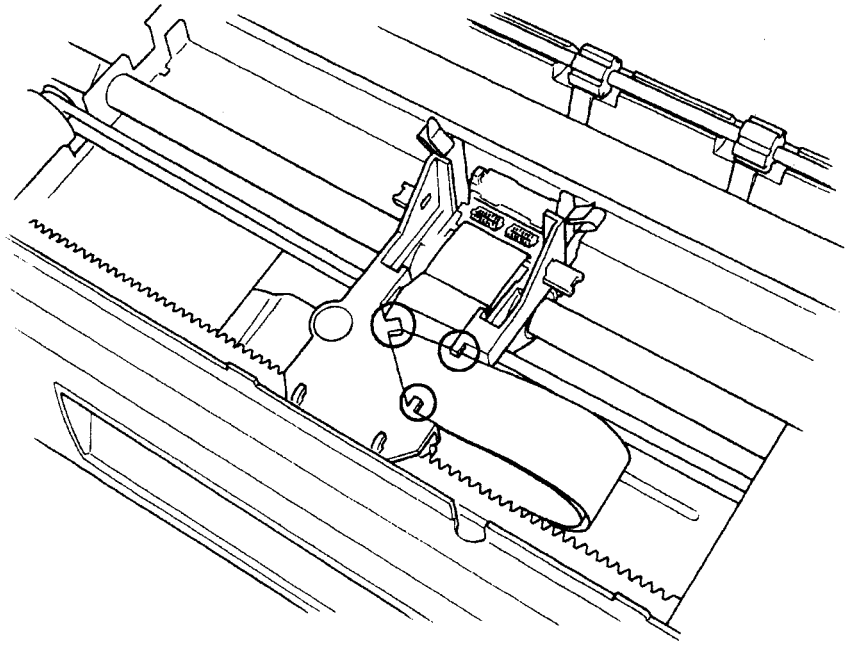


Figure 6-15 Cable Clamps

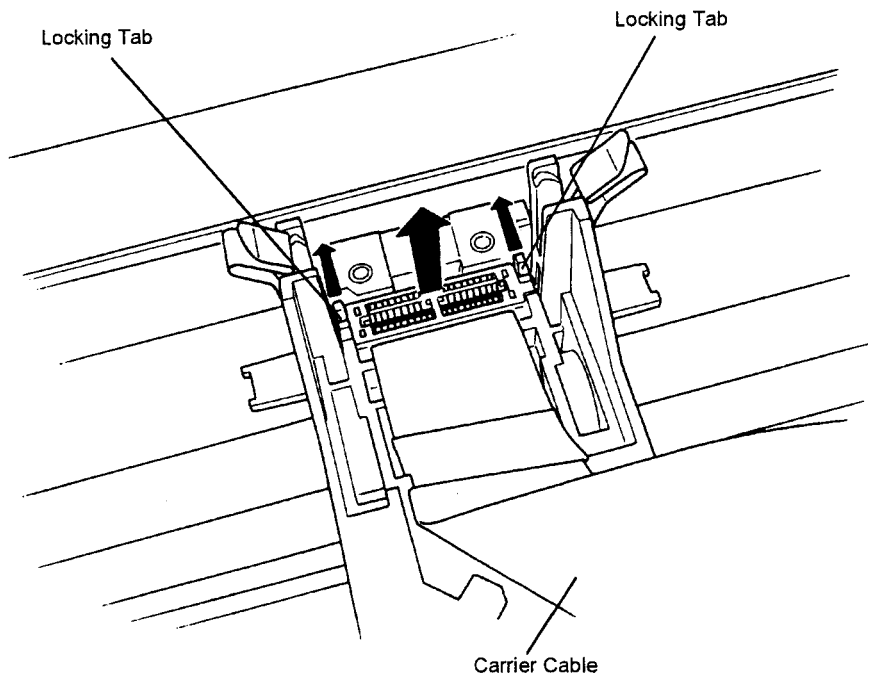


Figure 6-16 Connector Removal

Paper Thickness Setting Lever Removal

To remove the paper thickness setting lever, first remove the middle cover assembly. Then proceed as follows.

1. Remove the screw:
   — on the paper thickness setting lever to the guide shaft (model P22Q, see Figure 6-17).
   — on the balancer weight assembly (model P32Q, see Figure 6-18).
2. Remove the lever.

NOTE

Before reassembling the lever, lubricate its contact surfaces (see Section 4). After reinstalling the lever, adjust the platen gap (see Section 4).

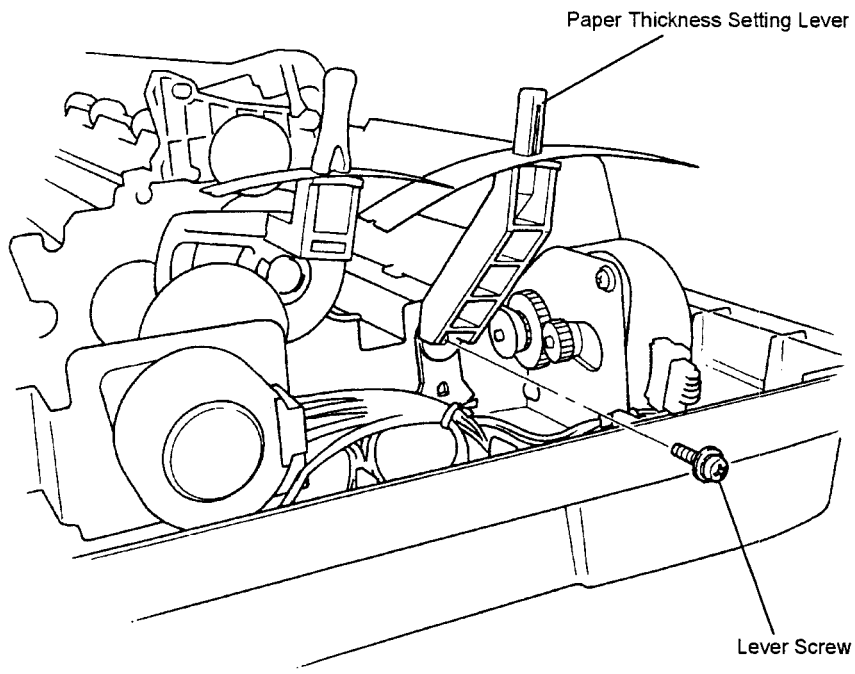


Figure 6-17 Paper Thickness Setting Lever Removal (Model P22Q)

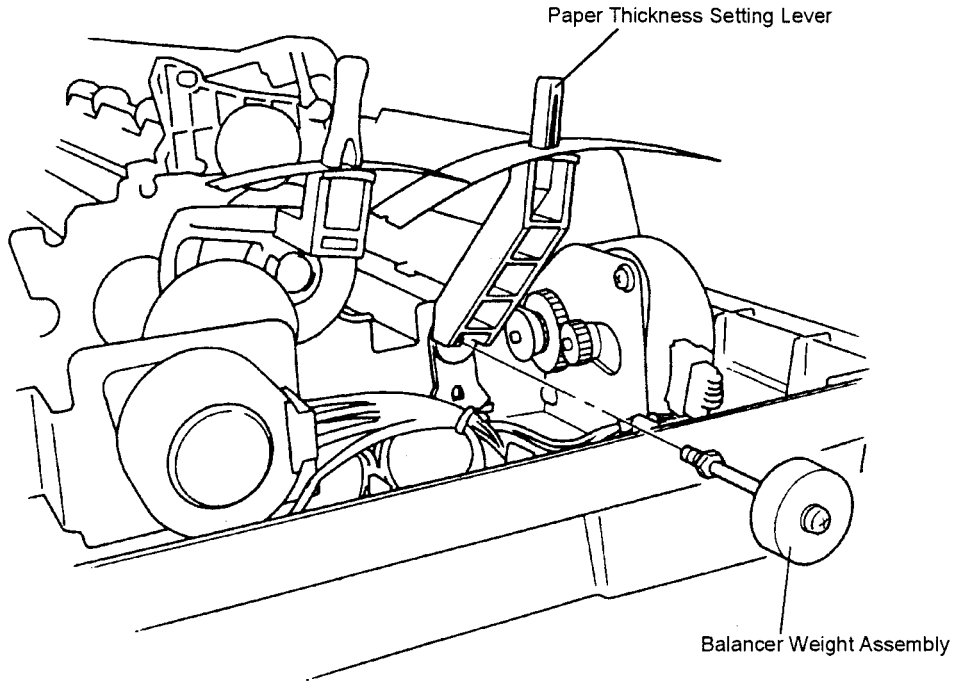


Figure 6-18 Paper Thickness Setting Lever Removal (Model P32Q)

SP Motor Assembly Removal

To remove the SP motor assembly, first remove the middle cover assembly. Then proceed as follows.

1. Unplug the SP motor cable from CN1 on the mother board (see Figure 6-19).
2. Release the SP motor cable from the cable tie on the printer base.
3. Remove the two screws holding the SP motor assembly in place (see Figure 6-20).
4. Remove the timing belt from the gear pulley.
5. Remove the motor assembly from the printer.

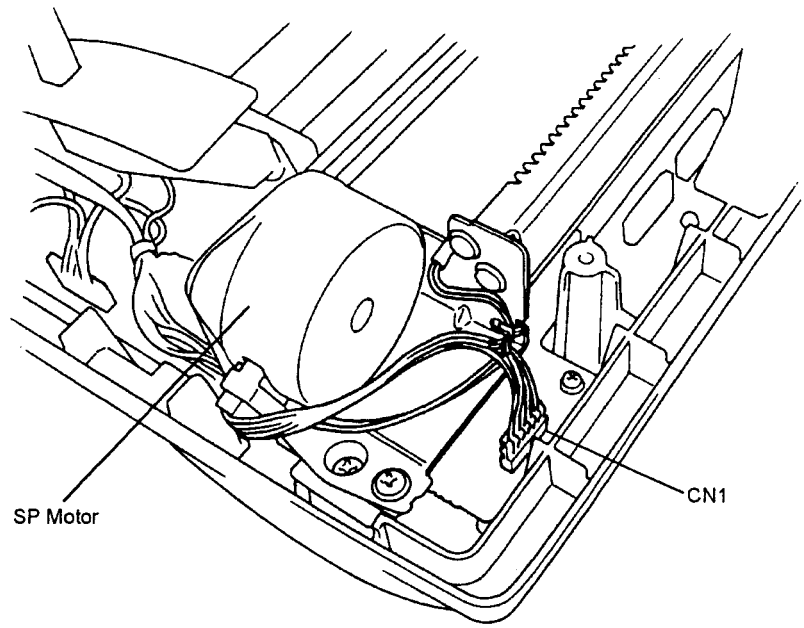


Figure 6-19 SP Motor Cable

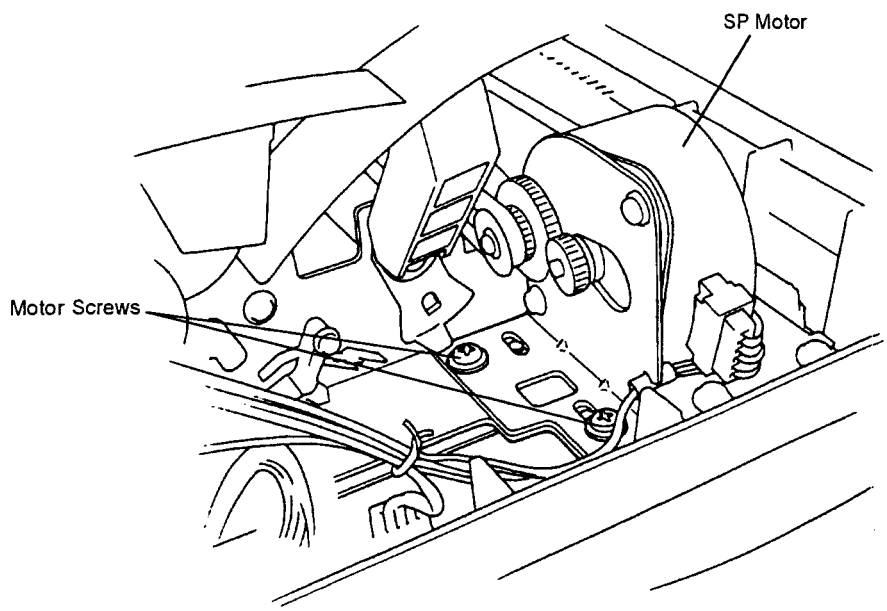


Figure 6-20 SP Motor Assembly Removal

Carrier Assembly Removal

To remove the carrier assembly, first remove the

- carrier cable assembly,
- paper thickness setting lever, and
- SP motor assembly.

Then proceed as follows.

1. Remove the driven pulley assembly from the right side frame (see Figure 6-21).

NOTE

Step 2 is necessary only for the model P22Q. If you use the model P32Q, skip to step 3.

2. Remove the guide shaft spring from the right side frame (see Figure 6-22).
3. Remove the shaft FG plate by loosening the screw holding it in place (see Figure 6-23).
4. Center the carrier assembly on the guide shaft.
5. Turn the eccentric bushing on the end of the shaft until the bushing tab aligns with the slot on the right side frame (see Figure 6-24).
6. Slide the shaft to the right enough to clear the left side frame and carefully pull the shaft off the carrier assembly and right side frame (see Figure 6-25).

NOTE

When pulling off the shaft, avoid dropping the shaft slider from the carrier assembly.

7. Remove the carrier assembly from the printer.

NOTE

After reinstalling the carrier assembly, adjust the platen gap (see Section 4).

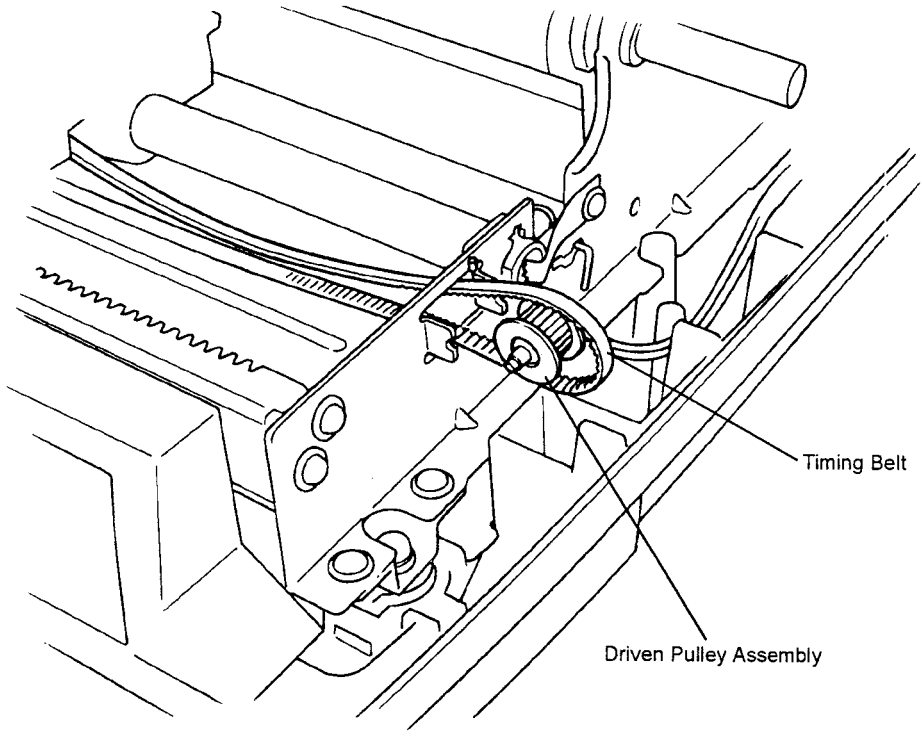


Figure 6-21 Driven Pulley Assembly Removal

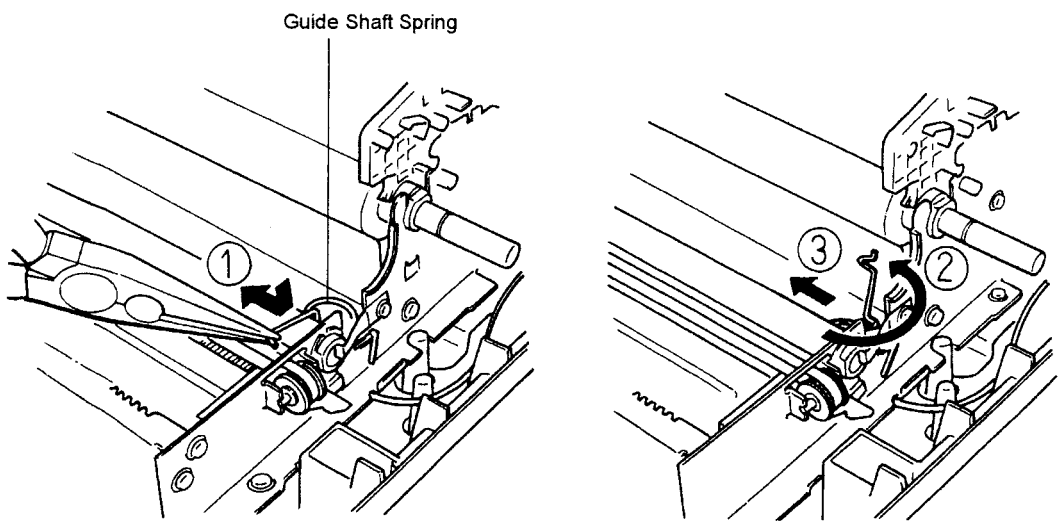


Figure 6-22 Guide Shaft Spring Removal (Model P22Q only)

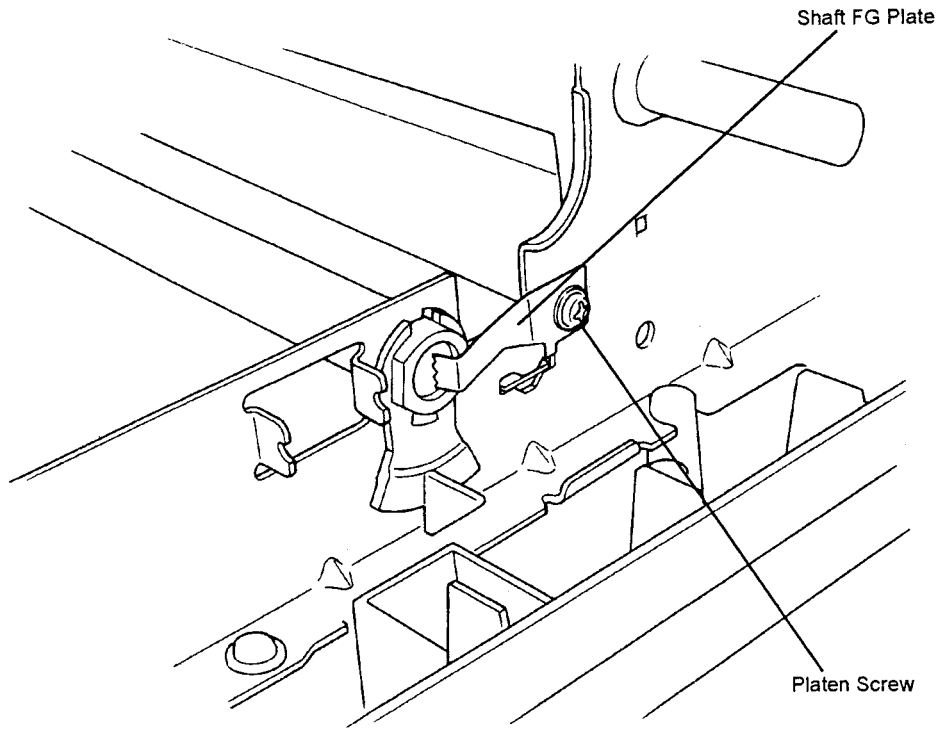


Figure 6-23 Shaft FG Plate Removal

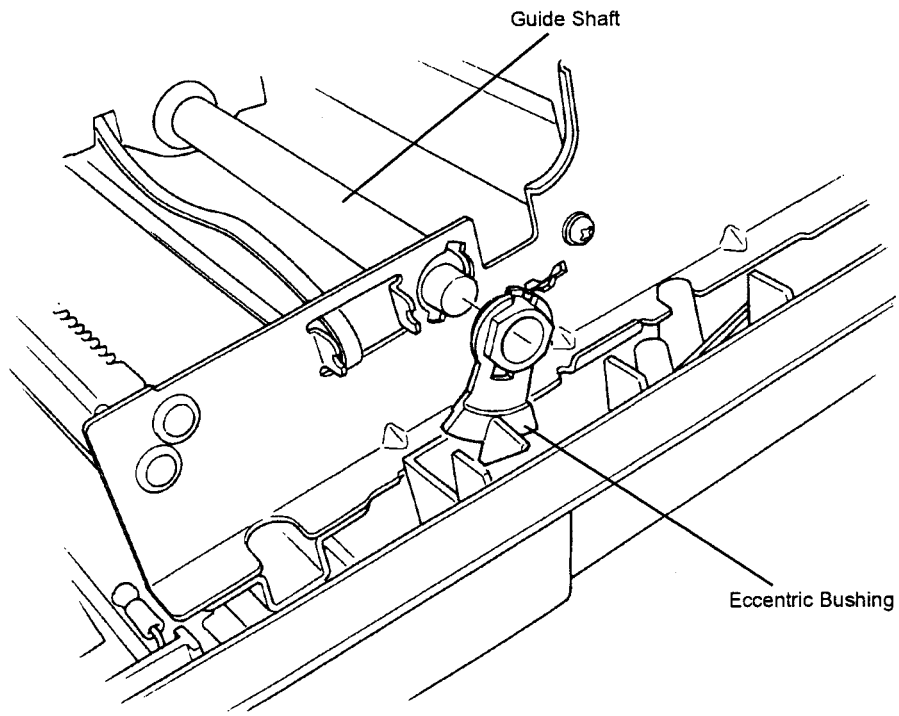


Figure 6-24 Eccentric Bushing Removal

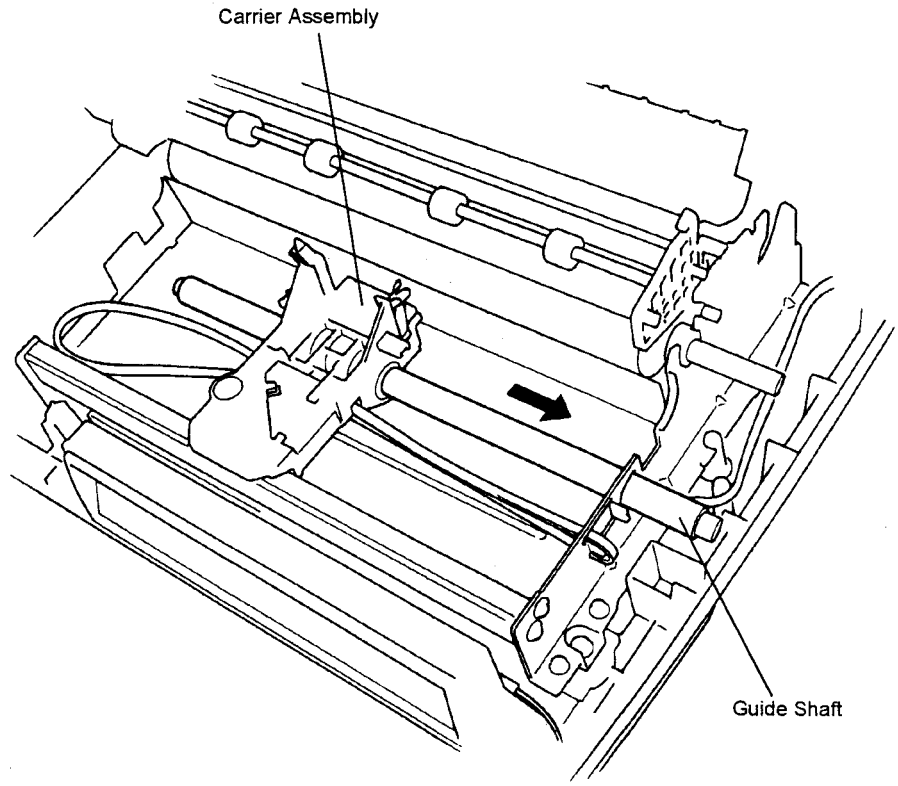


Figure 6-25 Carrier Assembly Removal

LF Motor Assembly Removal

To remove the LF motor assembly, first remove the middle cover assembly. Then proceed as follows.

1. Unplug the LF motor cable from CN5 on the mother board (see Figure 6-26).
2. Remove the cable tie from the LF motor cable.
3. Release the release arm spring from the LF motor bracket (see Figures 6-26 and 6-27).
4. Remove the two screws holding the LF motor unit to the left side frame.

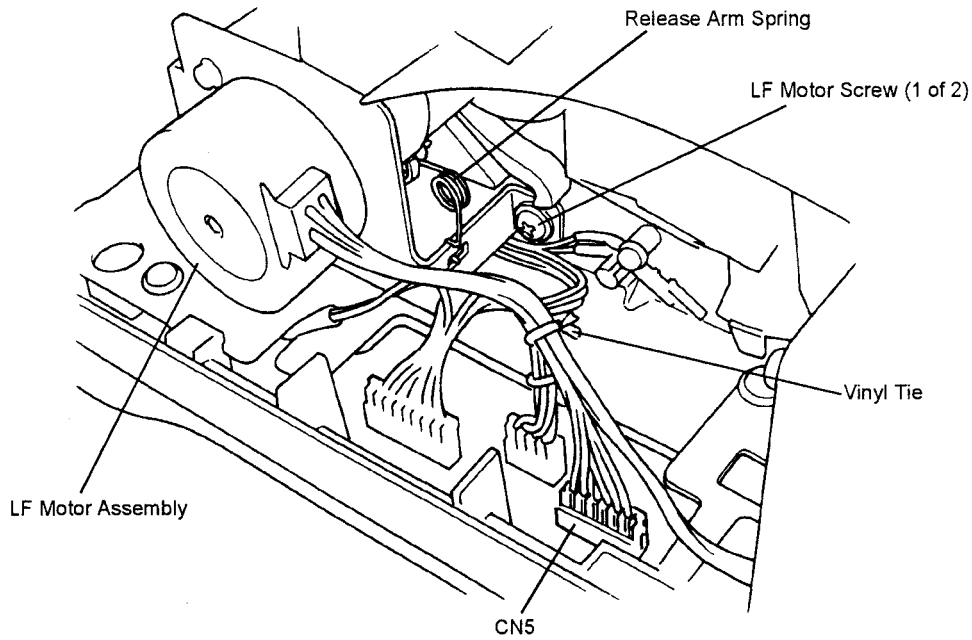


Figure 6-26 LF Motor Cable

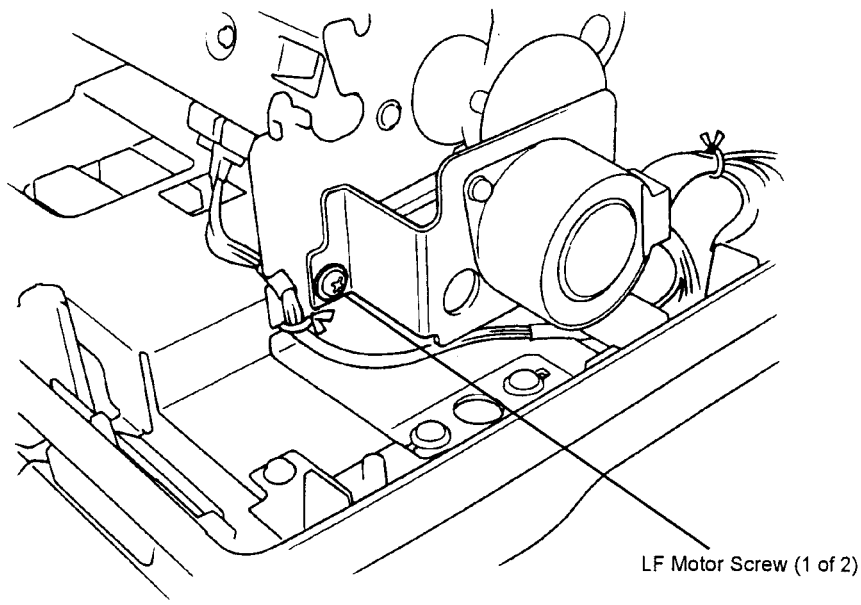


Figure 6-27 LF Motor Screws

Sensor Assembly Removal

The sensor assembly consists of a

- home position sensor,
- print force sensor, and
- paper selection sensor.

To remove the sensor assembly, first remove the

- middle cover and
- LF motor assembly.

Then proceed as follows.

1. Unplug the sensor assembly connector from CN7 on the mother board (see Figure 6-28).
2. Remove the four sensors by removing the four screws holding them in place (see Figure 6-29).
3. Release the sensor cables from the two cable ties and four cable slots.
4. Remove the sensor assembly form the printer.

NOTE

After installing the sensor and switch assembly, adjust the print force sensor and home position sensor (see Section 4).

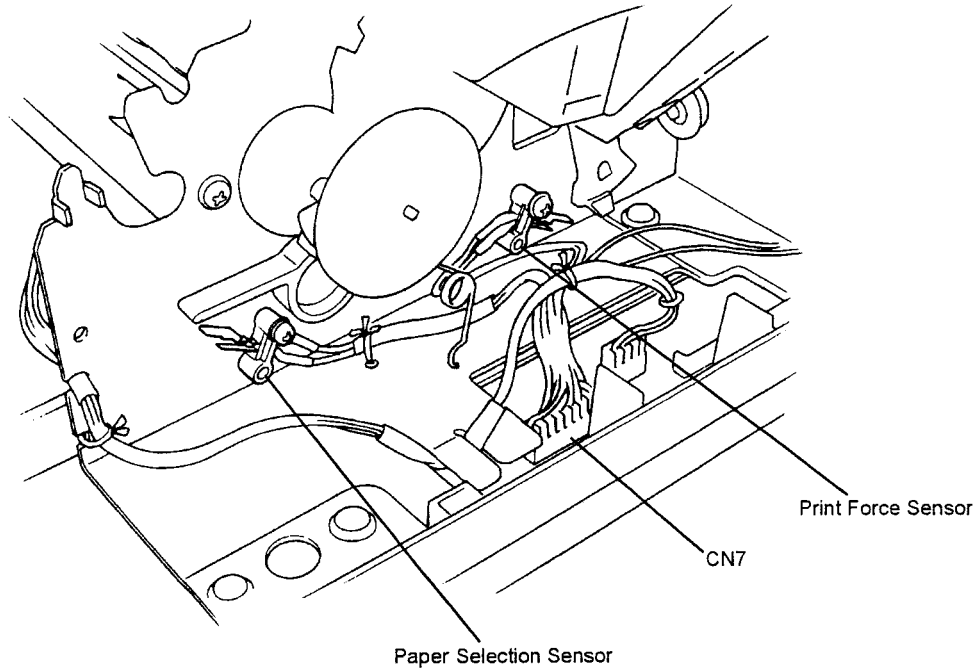


Figure 6-28 Sensor Assembly (1)

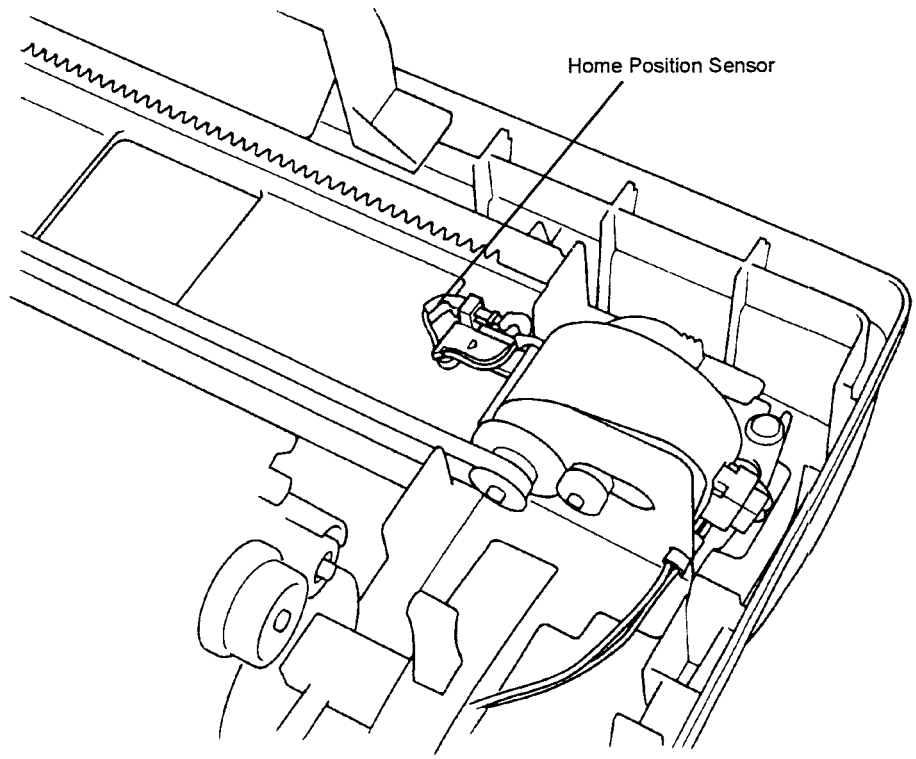


Figure 6-29 Sensor Assembly (2)

Paper Selection Lever and Slide Gear Removal

To remove the paper selection lever and slide gear, first remove the

- middle cover assembly and
- LF motor assembly.

Then proceed as follows.

1. Pull the LF gear and LF wave washer off the printer (see Figure 6-30).
2. Remove the E-ring on the end of the platen shaft.
3. Remove the U-ring on the end of the slide gear stud (see Figure 6-31).
4. Pull the paper selection lever off the shaft.
5. Pull the slide gear, slide gear washer and slide gear spring off the stud.

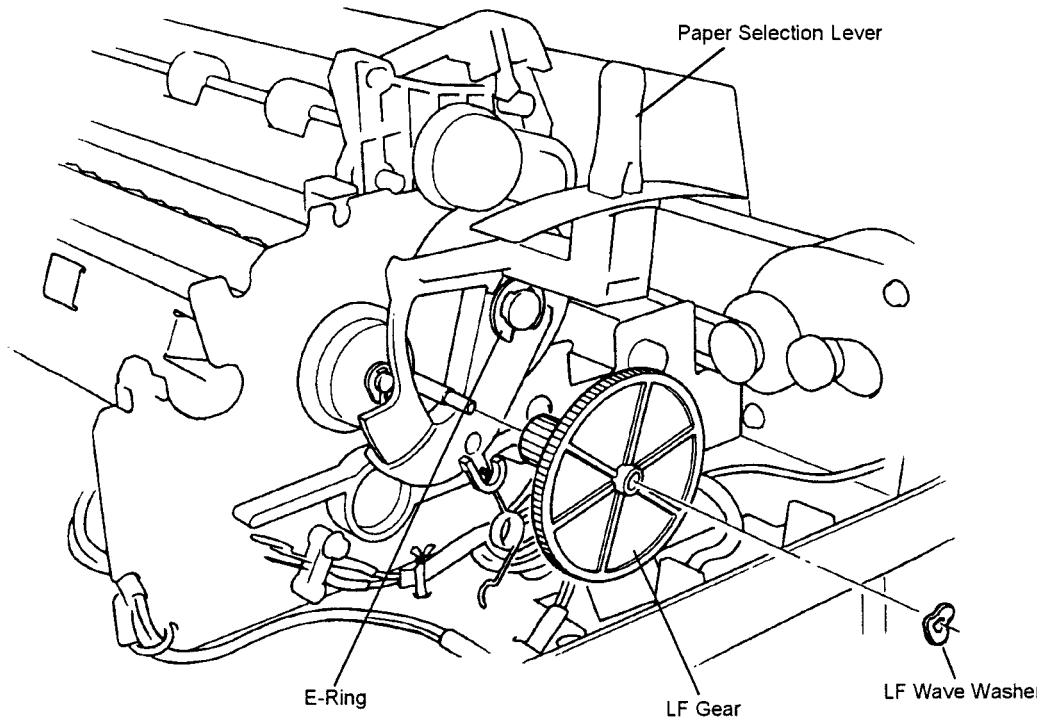


Figure 6-30 Paper Selection Lever Removal

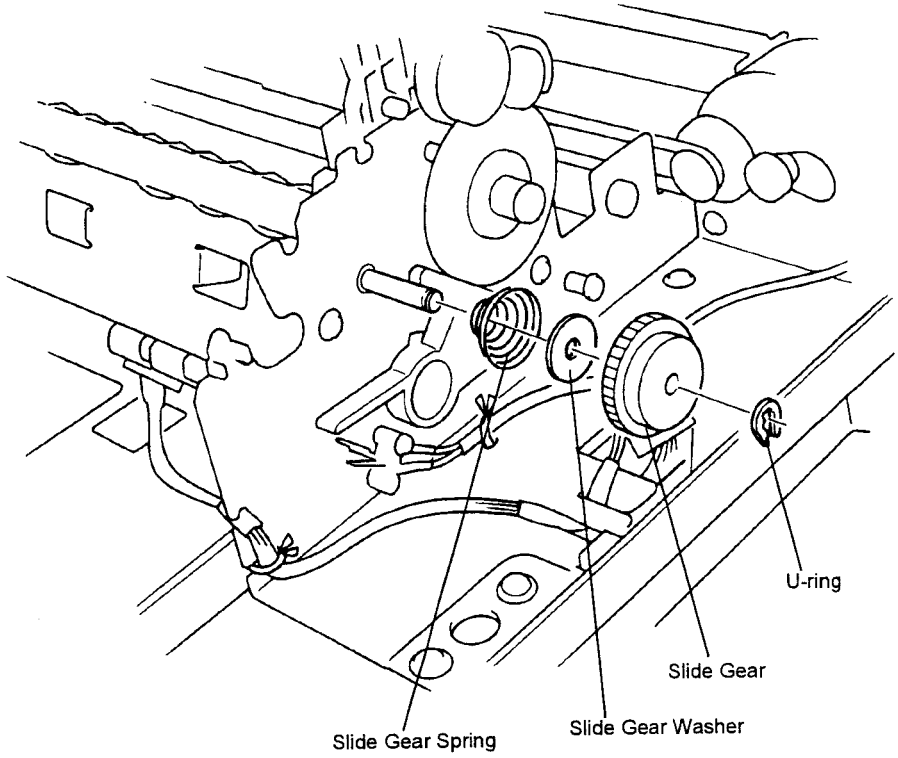


Figure 6-31 Slide Gear and Spring Removal

Release Arm Removal

To remove the release arm, first remove the

- middle cover assembly,
- LF motor assembly, and
- paper selection lever.

Then proceed as follows.

1. Turn the release arm until the tab on the arm aligns with the slot on the left side frame (see Figure 6-32).
2. Pull the paper release arm off the release plate.

NOTE

When reassembling the paper release arm, lubricate its contact surfaces (see Section 4).

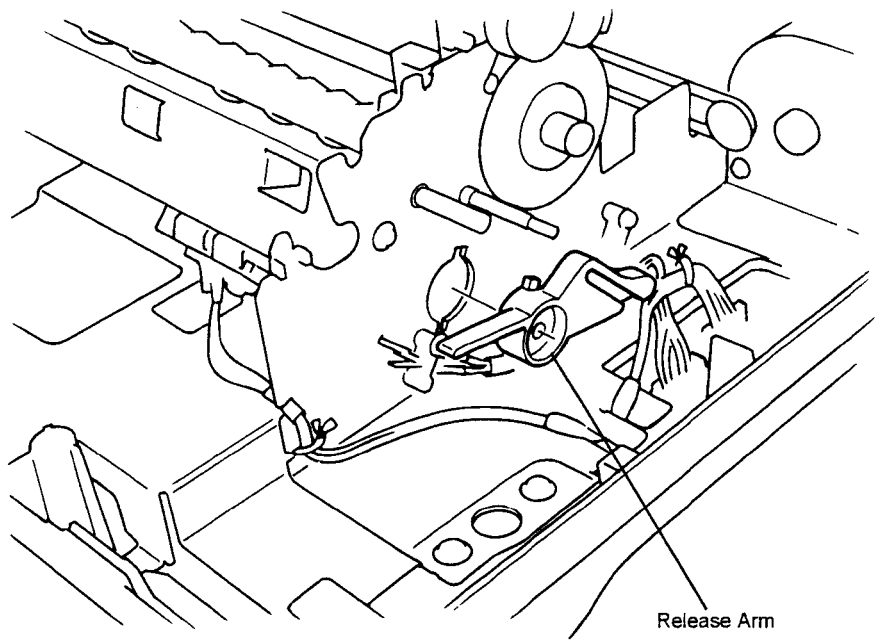


Figure 6-32 Release Arm Removal

MDL Sensor Assembly Removal

To remove the MDL sensor assembly, first remove the

- middle cover assembly and
- motor assembly.

Then proceed as follows.

1. Release the sensor cable from the two cable ties and cable slot (see Figure 6-33).
2. Remove the MDL sensor bracket by removing the screw holding it to the mechanism unit.
3. Remove the MDL sensor assembly by removing the screw holding it to the bracket.

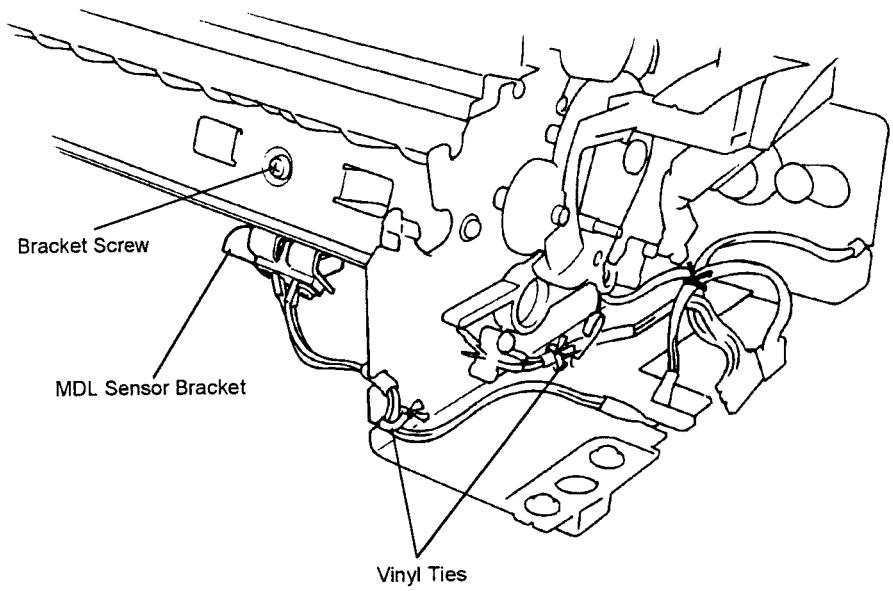


Figure 6-33 MDL Sensor Assembly Removal

Platen Assembly Removal

To remove the platen assembly, first remove the

- middle cover assembly,
- feed roller unit,
- LF motor assembly, and
- paper selection lever.

Then proceed as follows.

1. Pull the platen gear off the platen shaft (see Figure 6-34).

NOTE

Step 2 is necessary only for the model P32Q. If you use the model P22Q, skip to step 3.

2. Remove the E-ring on the end of the platen shaft (see Figure 6-35).
3. Unlock the platen by rotating the left and right platen bushings towards the front of the printer (see Figure 6-36).
4. Remove the platen assembly from the printer.

NOTE

When reinstalling the platen assembly, lubricate its bushing (see Section 4).

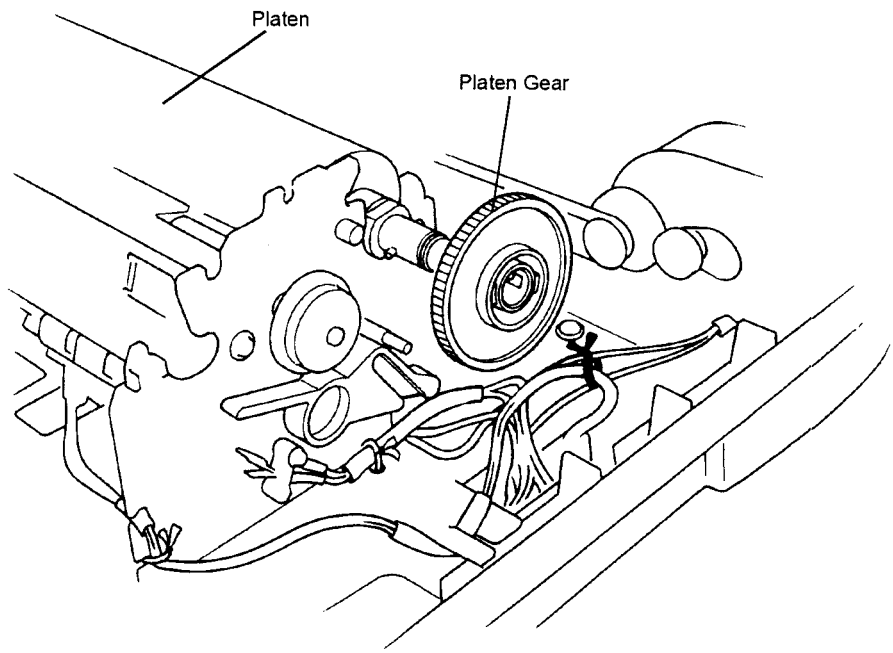


Figure 6-34 Platen Gear

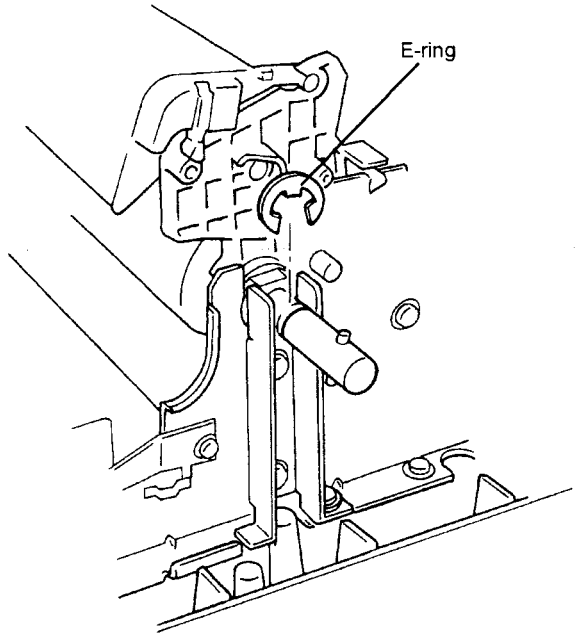


Figure 6-35 E-ring Removal (Model P32Q only)

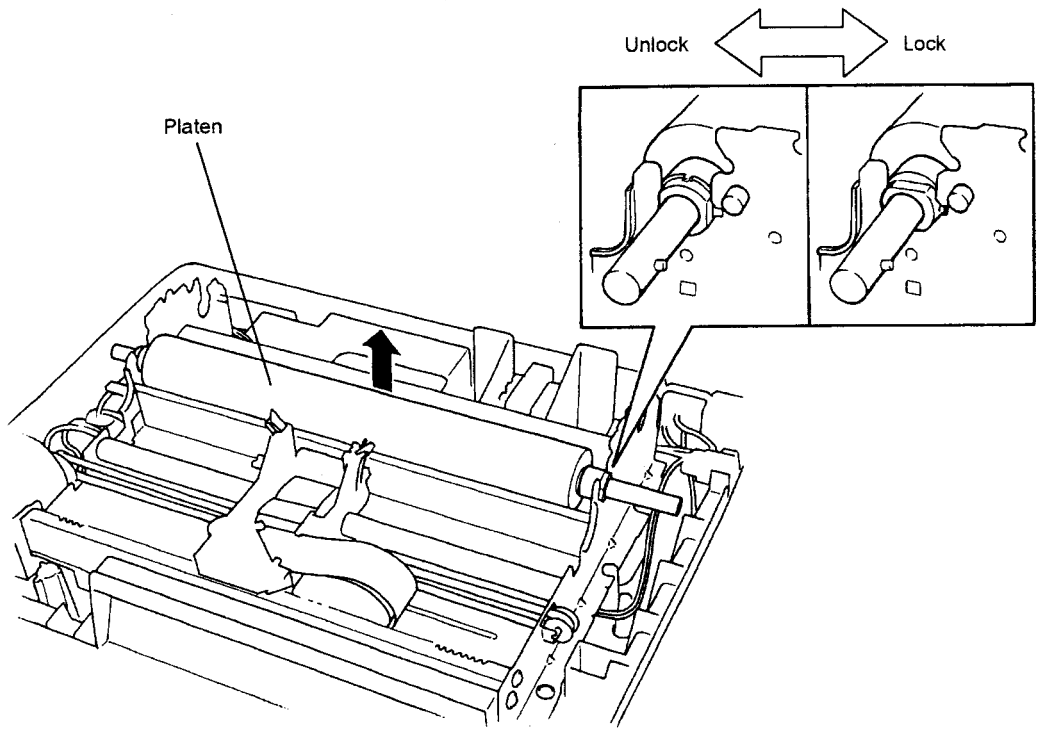


Figure 6-36 Platen Assembly

Mechanism Unit Removal

To remove the mechanism unit, first remove the middle cover assembly. Then proceed as follows.

1. Move the carrier to the right side of the printer.
2. Remove the carrier cable cover by removing the screw holding it in place (see Figure 6-37).
3. Unlock connectors CN3 and CN4, and remove the cables from the connectors.
4. Remove the cables from CN1, and CN5 through CN7 on the mother board (see Figures 6-38 and 6-39).
5. Remove the four screws holding the mechanism unit in place (see Figure 6-40).
6. Carefully lift the unit off the printer chassis.

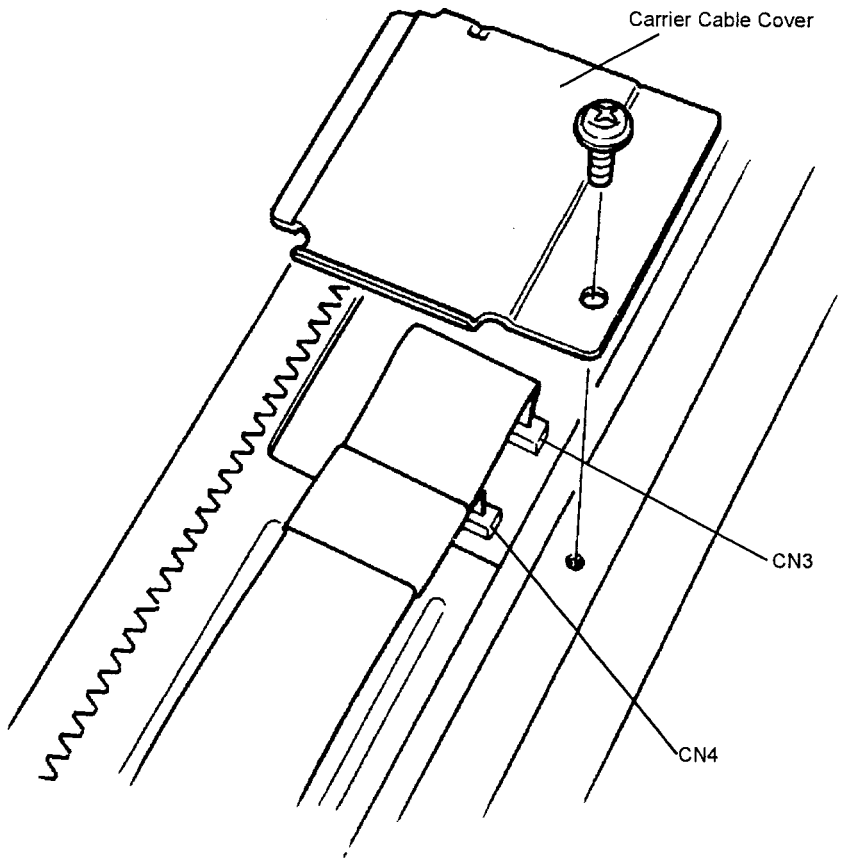


Figure 6-37 Carrier Cable Connectors

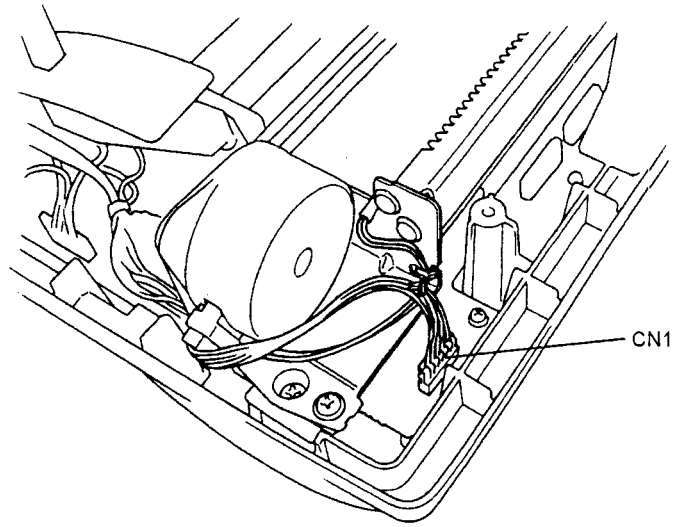


Figure 6-38 Connector CN1

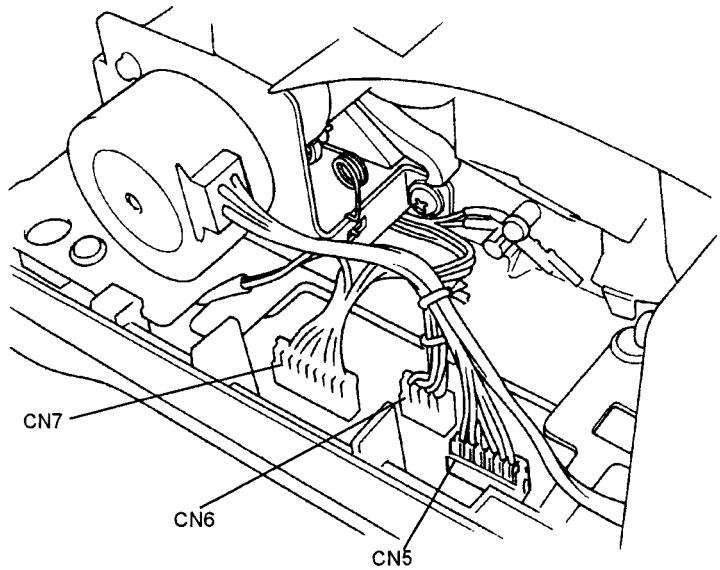


Figure 6-39 Connectors CN5 through CN7

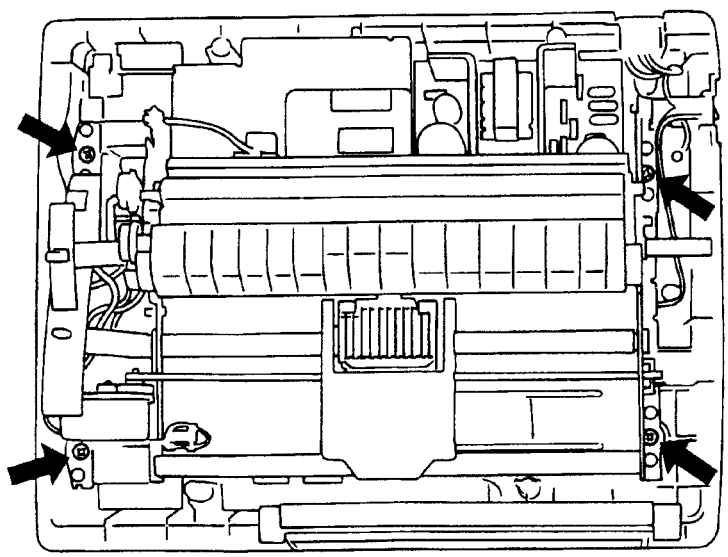


Figure 6-40 Mechanism Unit Screws

Mother Board Removal

To remove the mother board, first remove the

- middle cover assembly and
- mechanism unit.

Then proceed as follows.

1. Remove the shield cover by removing the five screws holding it in place (see Figure 6-41).
2. Unlock connector CN2 and remove the cable from the connector (see Figure 6-42).
3. Unplug the DC cable from CN8 on the mother board (see Figure 6-43).
4. Remove the 9 screws holding the mother board in place.
5. Lift the mother board out of the printer chassis.

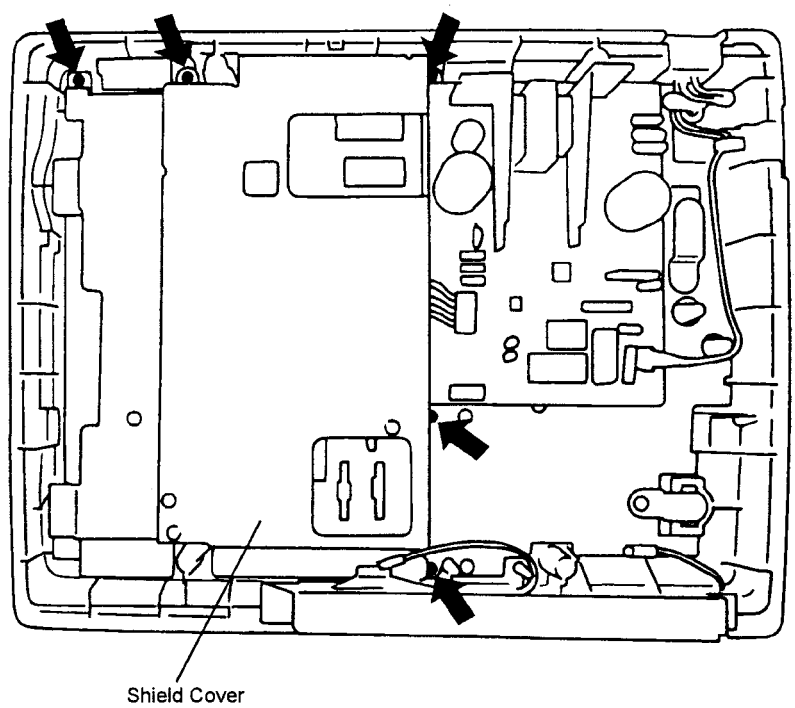


Figure 6-41 Shield Cover

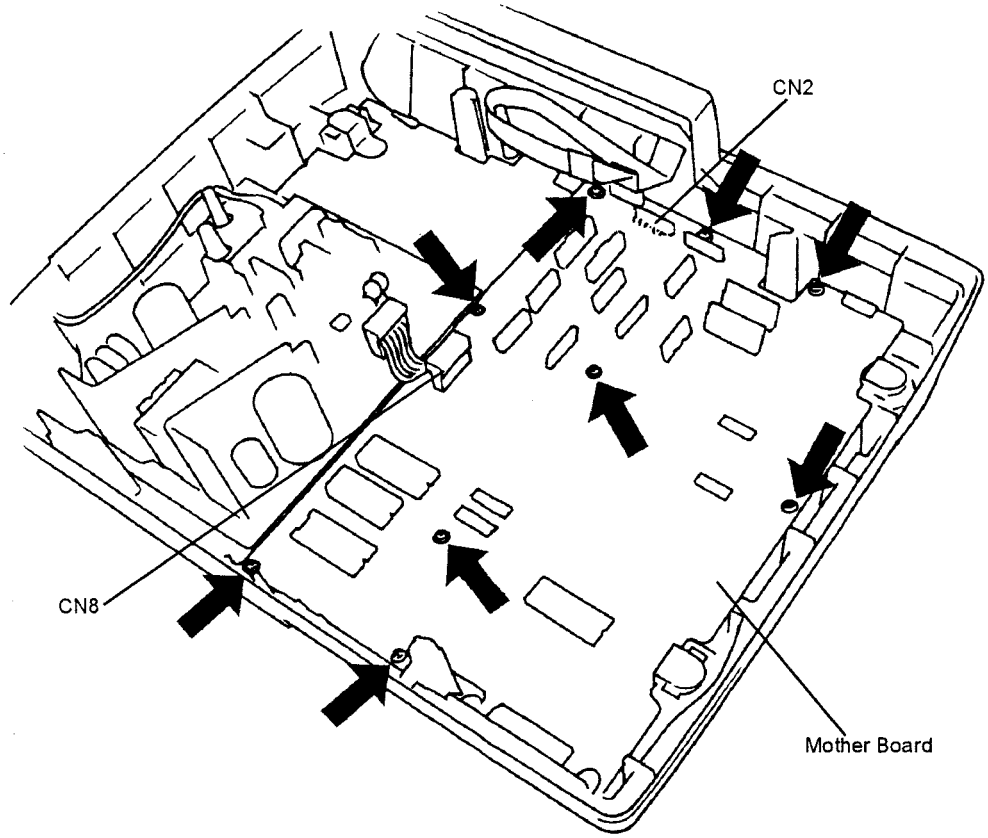


Figure 6-42 Mother Board, G8FVLE PCB

Power Board Removal

To remove the power board, first remove the

- middle cover assembly and
- mechanism unit.

Then proceed as follows.

1. Remove the cables from CN1 and CN2 on the power board (see Figure 6-43).
2. Remove the four screws holding the power board in place.
3. Remove the power board from the printer chassis.

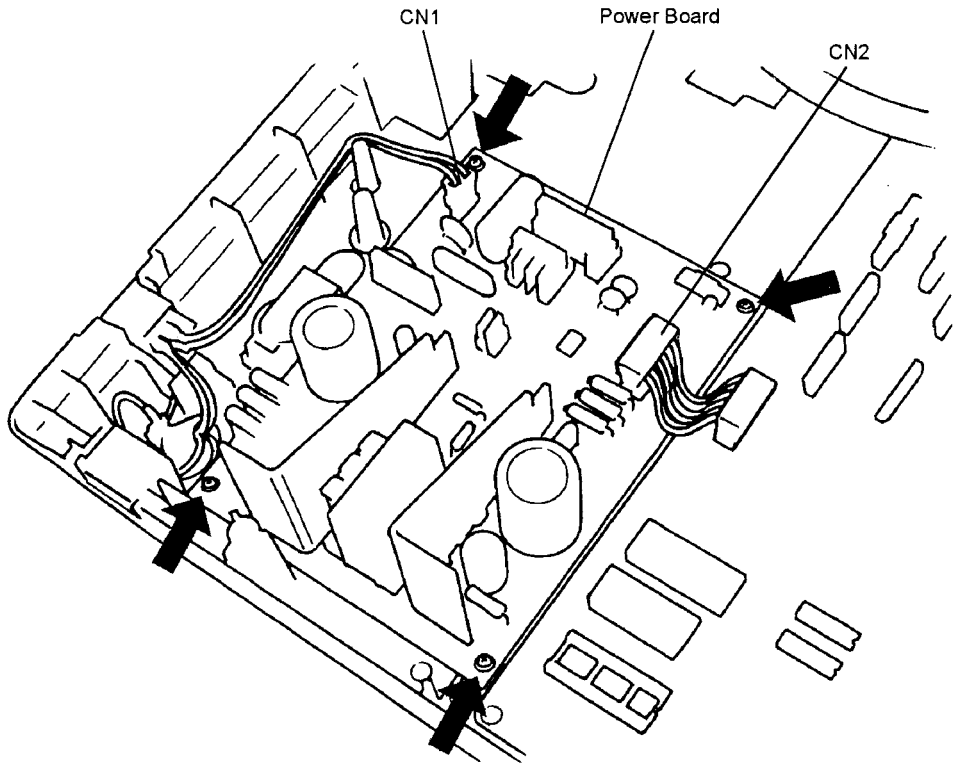
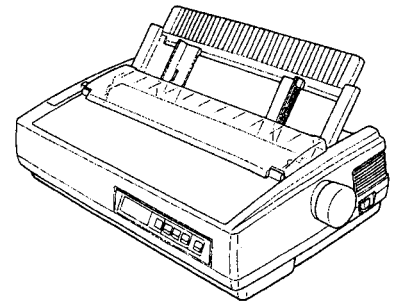


Figure 6-43 Power Board Removal

Section 7

Illustrated Parts Breakdown



This section contains optional and spare parts numbers, and the mechanical illustrated parts breakdown (IPB) for each Pinwriter.

OPTIONAL PARTS

Table 7-1 provides order numbers for the Pinwriter's optional parts.

Table 7-1 Printer Consumables and Options

DESCRIPTION	ORDER NUMBER
Black Nylon Ribbon	808-861623-001-A
Serial Interface Option 5207	136-218769-001-A
Sheet Feeder 4213	136-261022-301-A
Sheet Feeder 4313	136-261022-801-A

SPARE PARTS

The recommended spare parts for the Pinwriter are listed in Table 7-2.

Table 7-2 Recommended Spare Parts Kit (808-201162-GRP*-A)

SPARE PART	ORDER NUMBER	GRP:	QUANTITY 401	402	403	404	901	902	903	904
Carrier Assembly (N)	136-850742-101-A		1	1	1	1	–	–	–	–
Carrier Assembly (W)	136-850742-901-A		–	–	–	–	1	1	1	1
Carrier Cable Assembly (N)	136-847277-001-A		1	1	1	1	–	–	–	–
Carrier Cable Assembly (W)	136-847277-501-A		–	–	–	–	1	1	1	1
MDL Sensor Assembly	136-850750-A		1	1	1	1	1	1	1	1
Platen Assembly (N)	136-850752-101-A		1	1	1	1	–	–	–	–
Platen Assembly (W)	136-850752-501-A		–	–	–	–	1	1	1	1
SP Motor Assembly	136-850775-001-A		1	1	1	1	1	1	1	1
Driven Pulley Assembly	136-850754-A		1	1	1	1	1	1	1	1
LF Motor Assembly	136-850776-001-A		1	1	1	1	1	1	1	1
Feed Roller Unit (N)	136-220400-401-A		1	1	1	1	–	–	–	–
Feed Roller Unit (W)	136-220400-901-A		–	–	–	–	1	1	1	1
Roller Cover (N)	136-850679-001-A		1	1	1	1	–	–	–	–
Roller Cover (W)	136-850679-501-A		–	–	–	–	1	1	1	1
Sensor Assembly	136-876383-A		1	1	1	1	1	1	1	1
Card Holder	136-850668-A		1	1	1	1	1	1	1	1
Print Mask Assembly	136-876376-A		1	1	1	1	1	1	1	1
Eccentric Bushing	136-850694-A		1	1	1	1	1	1	1	1
Paper Thickness Setting Lever	136-850693-A		1	1	1	1	1	1	1	1
Paper Selection Lever	136-850706-A		1	1	1	1	1	1	1	1
Release Arm	136-850707-A		1	1	1	1	1	1	1	1
Slide Gear	136-850724-A		1	1	1	1	1	1	1	1
Slide Gear Spring	136-850768-A		1	1	1	1	1	1	1	1
Tractor Unit (N)	136-220401-001-A		1	1	1	1	–	–	–	–
Tractor Unit (W)	136-220401-501-A		–	–	–	–	1	1	1	1
SSS-Type 3SD P/H Assembly	136-229541-300-A		1	1	1	1	1	1	1	1
G8FVLE PCB Assembly	136-436693-005-C		1	1	1	1	1	1	1	1
PSC Power (C)	808-891154-313-B		1	1	1	1	1	1	1	1
Canopy Assembly (S)	136-864107-301-A		1	1	1	1	–	–	–	–

Table 7-2 Recommended Spare Parts Kit (808-201162-GRP*-A) - cont'd

SPARE PART	ORDER NUMBER	GRP:	Q' TY 401	402	403	404	901	902	903	904
Canopy Assembly (L)	136-864107-801-A		–	–	–	–	1	1	1	1
PSC OPP	808-869974-101-A		1	1	1	1	1	1	1	1
Platen Knob	136-850686-A		1	1	1	1	1	1	1	1
Sheet Guide Subassembly (S)	136-864109-301-A		1	1	1	1	–	–	–	–
Sheet Guide Subassembly (L)	136-850334-801-A		–	–	–	–	1	1	1	1
Paper Set Piece (L)	136-851392-301-A		1	1	1	1	1	1	1	1
Paper Set Piece (R)	136-851393-301-A		1	1	1	1	1	1	1	1

* GRP 401 : Model P22Q for England
GRP 402 : Model P22Q for German
GRP 403 : Model P22Q for France
GRP 404 : Model P22Q for Scandinavia and Iberia
GRP 901 : Model P32Q for England
GRP 902 : Model P32Q for German
GRP 903 : Model P32Q for France
GRP 904 : Model P32Q for Scandinavia and Iberia

ILLUSTRATED PARTS BREAKDOWN

The following explains the organization of the parts list that accompanies each IPB.

- Item — Indicate the item numbers referred to in the callouts.
- Part Number — Provides the NEC part number for ordering spare or replacement parts. Attaching hardware, such as screws, nuts, and washers, are described with six codes as shown in Figure 7-1. The screw in Figure 7-1 is a galvanized pan-head metric screw with cross groove, where nominal diameter is 3 mm and length is 6 mm. The codes are described in Table 7-3.
- Description — Provides a brief description of the part.
- Quantity — Indicates the number of parts per unit.

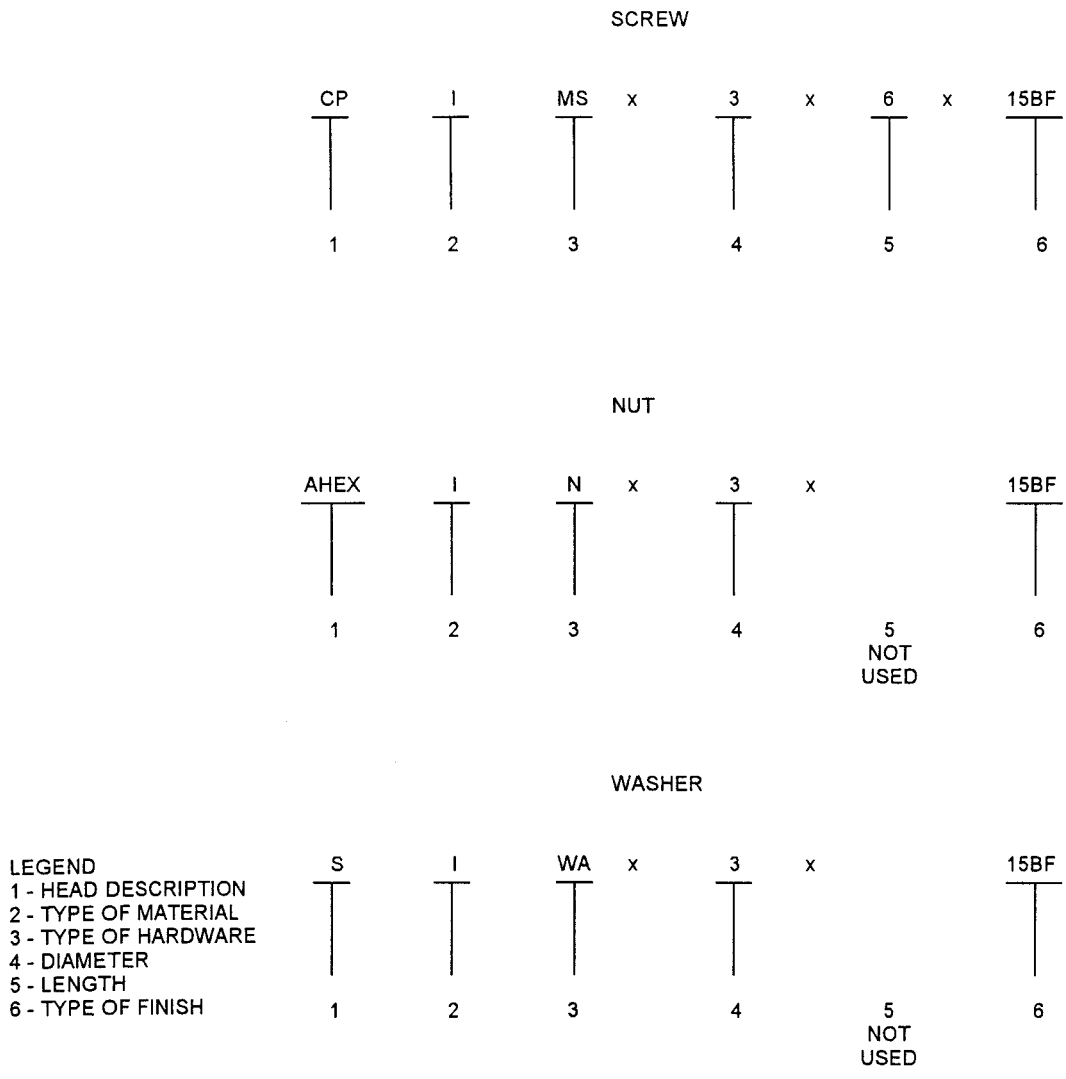

SCREW
CP I MS x 3 x 6 x 15BF
1 2 3 4 5 6
NUT
AHEX I N x 3 x 15BF
1 2 3 4 5 NOT USED 6
WASHER
S I WA x 3 x 15BF
1 2 3 4 5 NOT USED 6
LEGEND
1 - HEAD DESCRIPTION
2 - TYPE OF MATERIAL
3 - TYPE OF HARDWARE
4 - DIAMETER
5 - LENGTH
6 - TYPE OF FINISH

Figure 7-1 Typical Codes for Attaching Hardware

Table 7-3 Typical Codes for Attaching Hardware

CALLOUT	CODE	DESCRIPTION
1	CP	Pan-head screw with cross groove
	CF	Flat-head screw with croos groove
	L-CP	CP (see above) with spring washer
	P-CP	CP with polished washer
	S-CP	CP with small washer
	PL-CP	CP with polished and spring washers
	SL-CP	CP with small and spring washers
	HEX	Hexagon-head screw
	AHEX	A-type hexagon nut
	BHEX	B-type hexagon nut
	S	Small washer
	P	Polished washer
	#2xL	Spring washer
2	I	Iron
	B	Brass
	ST	Spring steel
3	MS	Metric screw
	N	Nut
	WA	Washer
4	x mm	Nominal diameter in mm
5	x mm	Length of screw in mm
6	15BF	Galvanized, lustrous coloration, chromate finish
	3GF	Lustrous nickel-plated finish

PART NAME	PART NUMBER	FIG. NO.
PINWRITER P22Q	136-220156-GRP-0*[1]	7-4
PSC' PRINTER UNIT (N)	136-220402-401-A	7-4
PSC' MECHANISM UNIT (N)	136-219414-401-A	7-6
CARRIER ASSEMBLY (N)	136-850742-101-A	7-8
CARRIER FRAME SUBASSEMBLY	136-850743-001-A	7-10
TORQUE GEAR	136-850658-A	7-10
IDLE GEAR	136-850659-A	7-10
PLANETARY GEAR	136-850660-B	7-10
PLANETARY ARM	136-850661-B	7-10
FRICTION DISK	136-850663-A	7-10
HEAD CLAMP (L)	136-850664-002-B	7-10
HEAD CLAMP (R)	136-850664-001-B	7-10
CR FG PLATE	136-850667-A	7-10
CARIER CABLE (J) ASSEMBLY	808-847277-001-A	7-10
MICROPITCH TIMING BELT	808-805290-001-A	7-10
CR FG PLATE (A)	136-850791-A	7-10
PLANETARY GEAR STOPPER	136-850799-A	7-10
IDLE GEAR (INS)	136-858869-001-A	7-10
SCREW, PCBTSx3x10x15BF	808-802045-310-0	7-10
FRAME ASSEMBLY (N)	136-220398-101-A	7-8
RIGHT SIDE FRAME SUBASSEMBLY	136-850746-A	7-11
LEFT SIDE FRAME SUBASSEMBLY	136-850747-A	7-11
FRONT STAY (N)	136-850703-001-A	7-11
MAIN STAY (N)	136-850701-001-B	7-11
PRESSURE SHEET (N)	136-876363-A	7-11
FRAME FOOT BRACKET	136-850697-A	7-11

A B C D

Figure 7-2 Family Tree-Pinwriter P22Q (1/11)

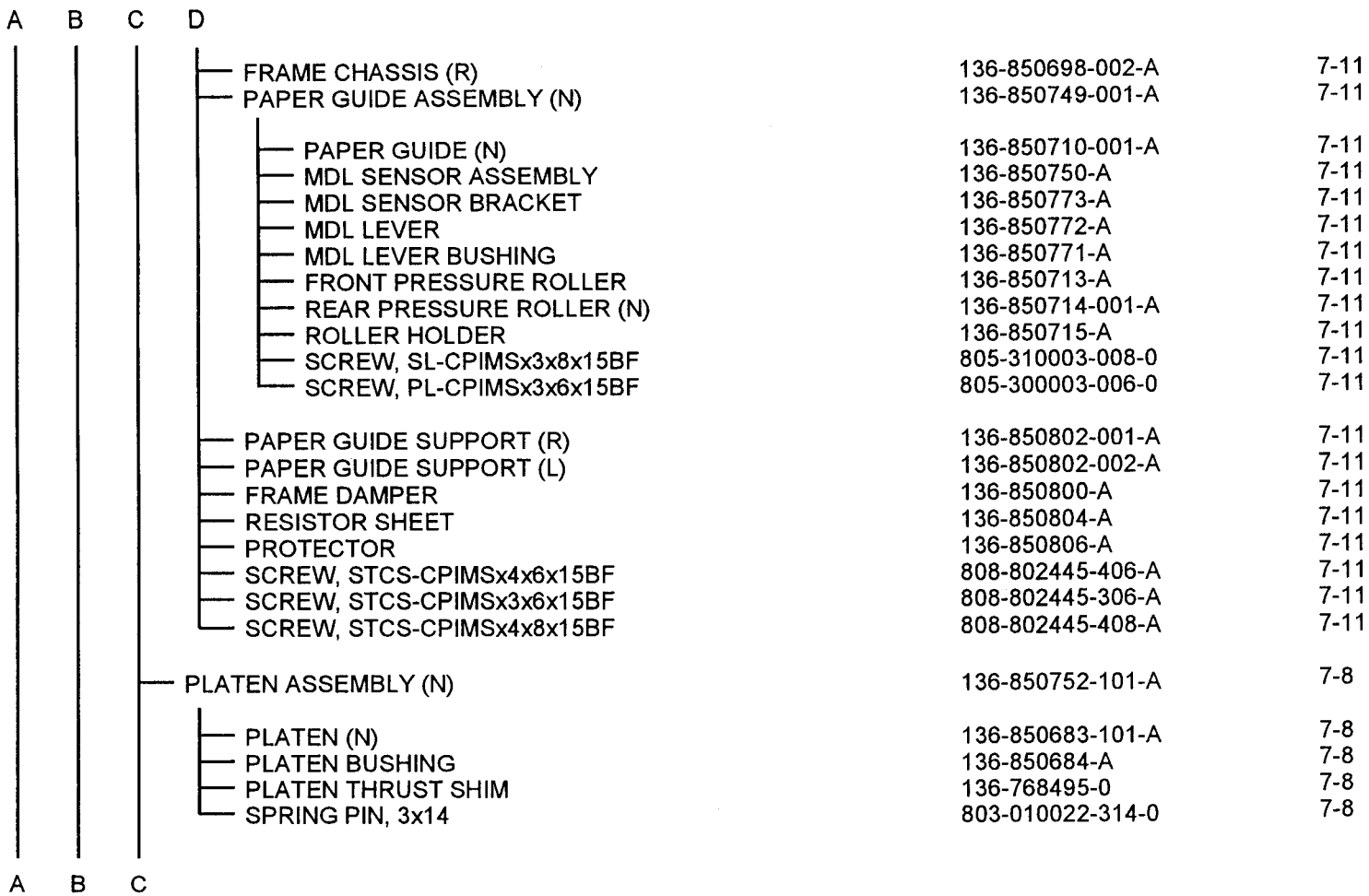
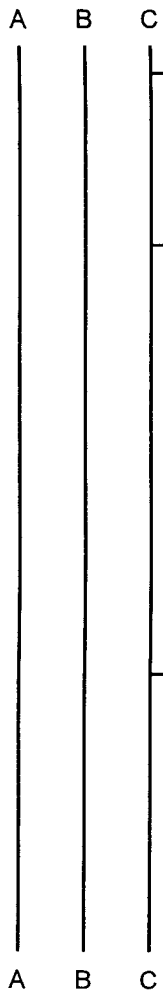

A B C D
FRAME CHASSIS (R) 136-850698-002-A 7-11
PAPER GUIDE ASSEMBLY (N) 136-850749-001-A 7-11
PAPER GUIDE (N) 136-850710-001-A 7-11
MDL SENSOR ASSEMBLY 136-850750-A 7-11
MDL SENSOR BRACKET 136-850773-A 7-11
MDL LEVER 136-850772-A 7-11
MDL LEVER BUSHING 136-850771-A 7-11
FRONT PRESSURE ROLLER 136-850713-A 7-11
REAR PRESSURE ROLLER (N) 136-850714-001-A 7-11
ROLLER HOLDER 136-850715-A 7-11
SCREW, SL-CPIMSx3x8x15BF 805-310003-008-0 7-11
SCREW, PL-CPIMSx3x6x15BF 805-300003-006-0 7-11
PAPER GUIDE SUPPORT (R) 136-850802-001-A 7-11
PAPER GUIDE SUPPORT (L) 136-850802-002-A 7-11
FRAME DAMPER 136-850800-A 7-11
RESISTOR SHEET 136-850804-A 7-11
PROTECTOR 136-850806-A 7-11
SCREW, STCS-CPIMSx4x6x15BF 808-802445-406-A 7-11
SCREW, STCS-CPIMSx3x6x15BF 808-802445-306-A 7-11
SCREW, STCS-CPIMSx4x8x15BF 808-802445-408-A 7-11
PLATEN ASSEMBLY (N) 136-850752-101-A 7-8
PLATEN (N) 136-850683-101-A 7-8
PLATEN BUSHING 136-850684-A 7-8
PLATEN THRUST SHIM 136-768495-0 7-8
SPRING PIN, 3x14 803-010022-314-0 7-8
A B C

Figure 7-2 Family Tree-Pinwriter P22Q (2/11)



RELEASE PLATE ASSEMBLY (N)	136-850753-001-A	7-8
RELEASE PLATE (N)	136-850738-A	7-8
PRESSURE SPRING	136-850700-002-A	7-8
SCREW, STCS-CPIMSx3x6x15BF	808-802445-306-A	7-8
SP MOTOR ASSEMBLY	136-850775-001-A	7-8
SP MOTOR	808-805288-001-A	7-13
SP MOTOR BRACKET ASSEMBLY	136-850756-A	7-13
SP MOTOR BRACKET SUBASSEMBLY	136-850757-B	7-13
GEAR PULLEY	136-850718-A	7-13
PULLEY FLANGE	136-850730-A	7-13
PULEY SHIM	136-850731-A	7-13
DRIVEN BUSHING	808-868150-001-A	7-13
BEARING SPACER	136-850801-A	7-13
E RING E-28	803-010030-028-0	7-13
SCREW, SL-CPIMSx3x6x15BF	805-310003-006-0	7-13
DRIVEN PULLEY ASSEMBLY	136-850754-A	7-8
DRIVEN PULLEY	136-850729-A	7-8
PULLEY FLANGE	136-850730-A	7-8
PULLEY SHIM	136-850731-A	7-8
DRIVEN SHAFT	136-850732-A	7-8
DRIVEN BUSHING	808-868150-001-A	7-8
BEARING SPACER	136-850801-A	7-8
E RING E-28	803-010030-028-0	7-8

Figure 7-2 Family Tree-Pinwriter P22Q (3/11)

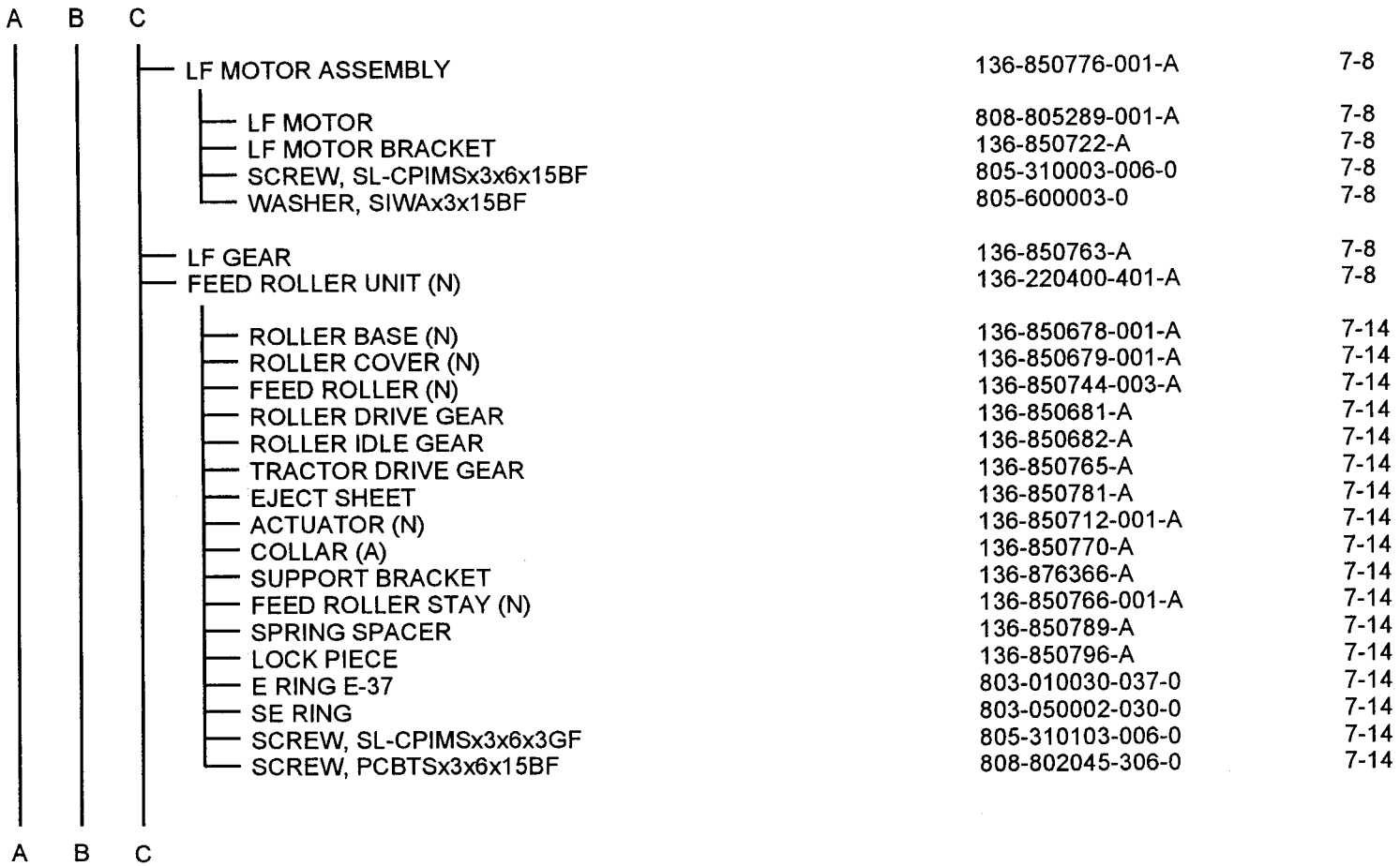


Figure 7-2 Family Tree-Pinwriter P22Q (4/11)

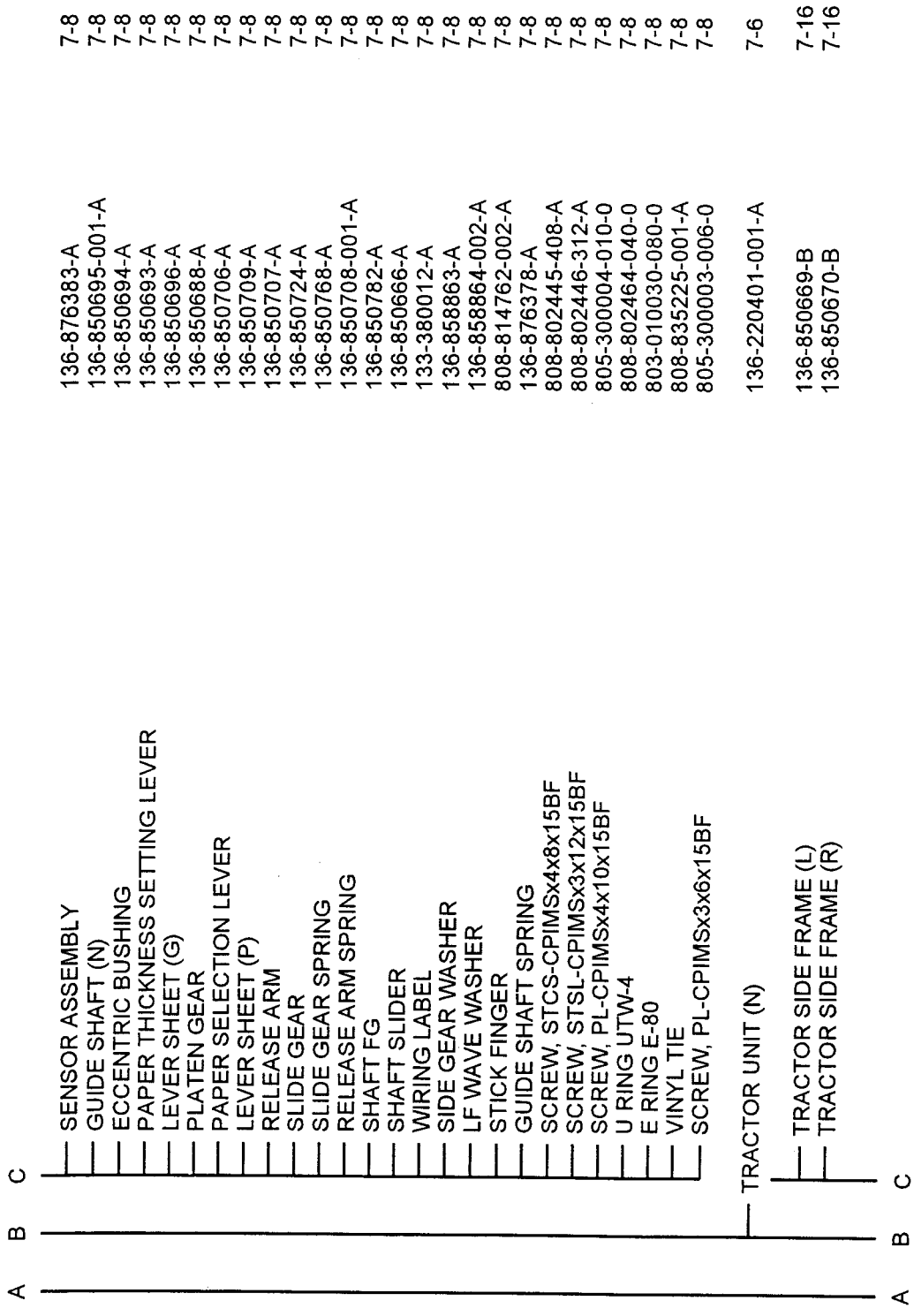

A
B
C
SENSOR ASSEMBLY 136-876383-A 7-8
GUIDE SHAFT (N) 136-850695-001-A 7-8
ECCENTRIC BUSHING 136-850694-A 7-8
PAPER THICKNESS SETTING LEVER 136-850693-A 7-8
LEVER SHEET (G) 136-850696-A 7-8
PLATEN GEAR 136-850688-A 7-8
PAPER SELECTION LEVER 136-850706-A 7-8
LEVER SHEET (P) 136-850709-A 7-8
RELEASE ARM 136-850707-A 7-8
SLIDE GEAR 136-850724-A 7-8
SLIDE GEAR SPRING 136-850768-A 7-8
RELEASE ARM SPRING 136-850708-001-A 7-8
SHAFT FG 136-850782-A 7-8
SHAFT SLIDER 136-850666-A 7-8
WIRING LABEL 133-380012-A 7-8
SIDE GEAR WASHER 136-858863-A 7-8
LF WAVE WASHER 136-858864-002-A 7-8
STICK FINGER 808-814762-002-A 7-8
GUIDE SHAFT SPRING 136-876378-A 7-8
SCREW, STCS-CPIMSx4x8x15BF 808-802445-408-A 7-8
SCREW, STSL-CPIMSx3x12x15BF 808-802446-312-A 7-8
SCREW, PL-CPIMSx4x10x15BF 805-300004-010-0 7-8
U RING UTW-4 808-802464-040-0 7-8
E RING E-80 803-010030-080-0 7-8
VINYL TIE 808-835225-001-A 7-8
SCREW, PL-CPIMSx3x6x15BF 805-300003-006-0 7-8
TRACTOR UNIT (N) 136-220401-001-A 7-6
TRACTOR SIDE FRAME (L) 136-850669-B 7-16
TRACTOR SIDE FRAME (R) 136-850670-B 7-16
A
B
C

Figure 7-2 Family Tree-Pinwriter P22Q (5/11)

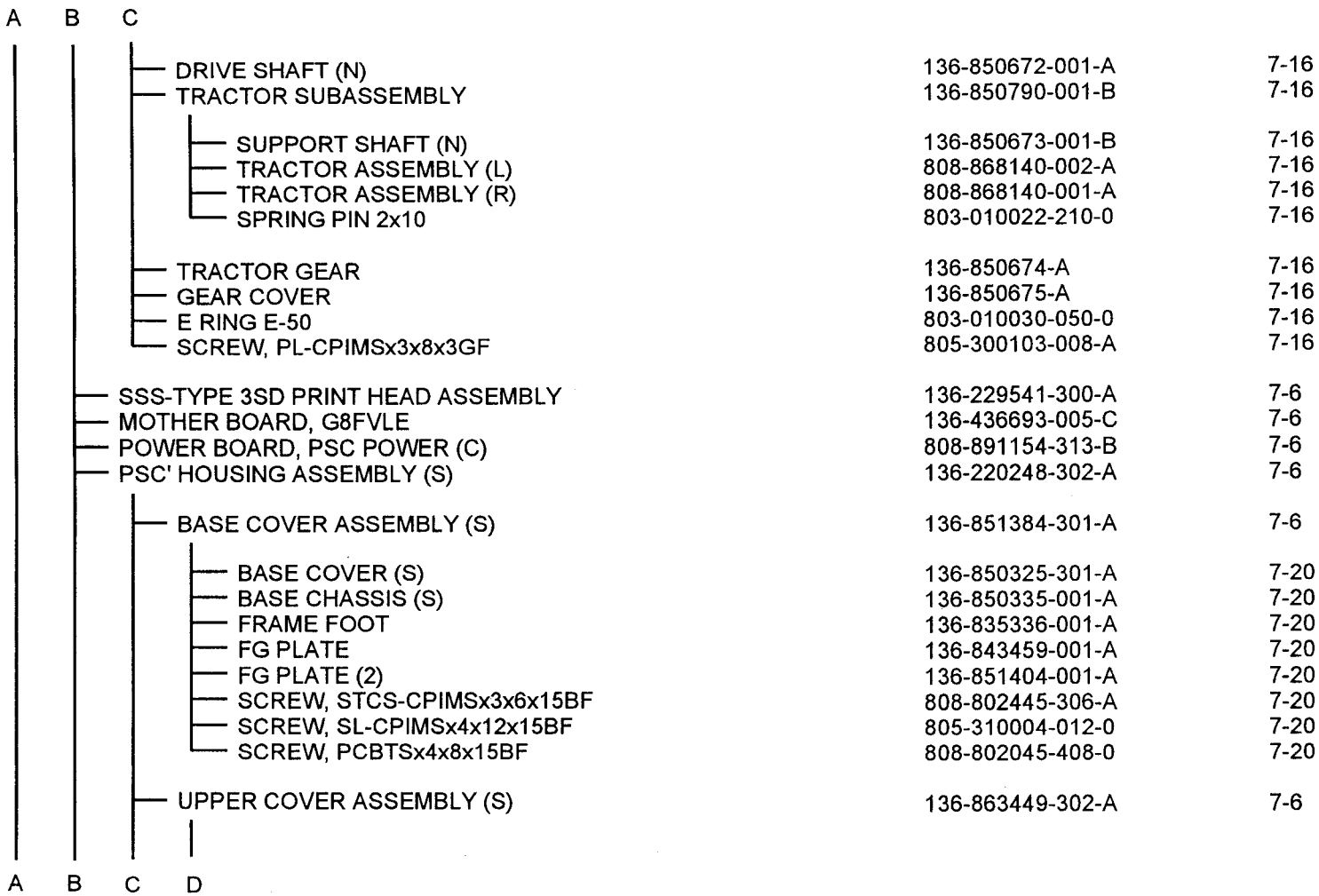


Figure 7-2 Family Tree-Pinwriter P22Q (6/11)

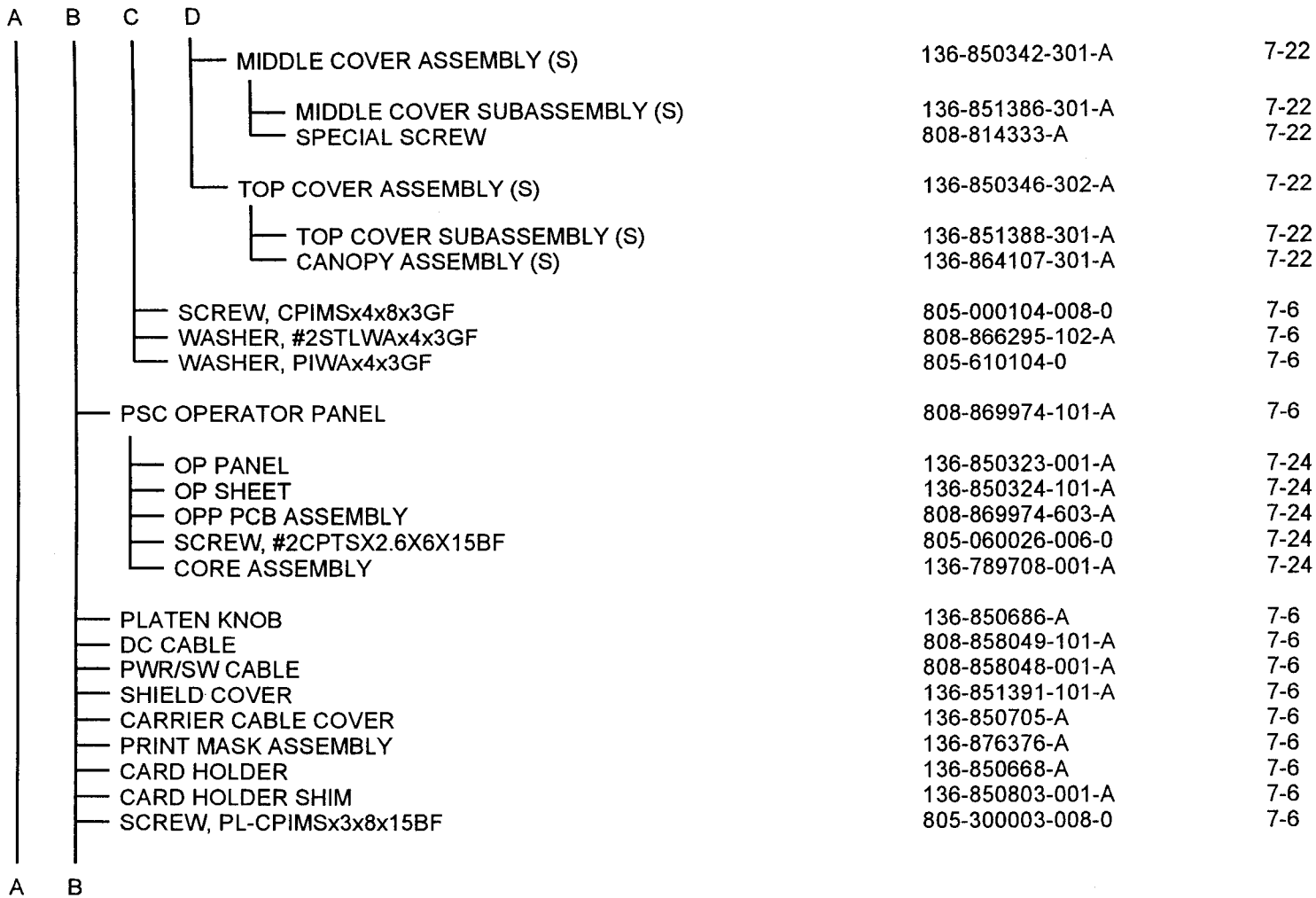
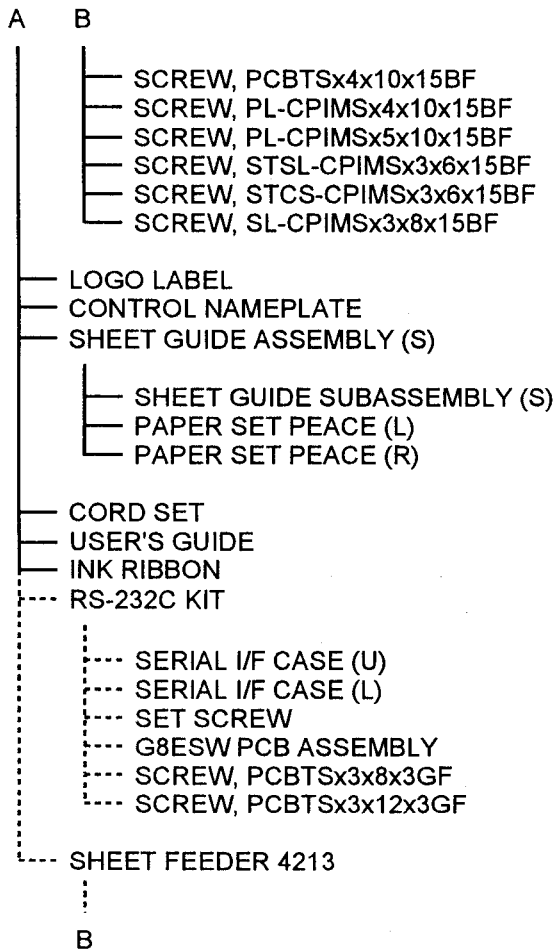


Figure 7-2 Family Tree-Pinwriter P22Q (7/11)



SCREW, PCBTSx4x10x15BF	808-802045-410-0	7-6
SCREW, PL-CPIMSx4x10x15BF	805-300004-010-0	7-6
SCREW, PL-CPIMSx5x10x15BF	805-300005-010-0	7-6
SCREW, STSL-CPIMSx3x6x15BF	808-802446-306-A	7-6
SCREW, STCS-CPIMSx3x6x15BF	808-802445-306-A	7-6
SCREW, SL-CPIMSx3x8x15BF	805-310003-008-0	7-6
LOGO LABEL	136-707569-302-A	7-4
CONTROL NAMEPLATE	136-707570-302-A	7-4
SHEET GUIDE ASSEMBLY (S)	136-864108-301-A	7-4
SHEET GUIDE SUBASSEMBLY (S)	136-864109-301-A	7-4
PAPER SET PEACE (L)	136-851392-301-A	7-4
PAPER SET PEACE (R)	136-851393-301-A	7-4
CORD SET	808-846856-GRP-A*2	7-4
USER'S GUIDE	808-870261-GRP-A*3	7-4
INK RIBBON	808-861623-001-A	7-4
RS-232C KIT	808-217741-001-A	7-4
SERIAL I/F CASE (U)	136-846899-001-A	7-25
SERIAL I/F CASE (L)	136-846900-001-A	7-25
SET SCREW	136-846884-001-A	7-25
G8ESW PCB ASSEMBLY	136-436275-A	7-25
SCREW, PCBTSx3x8x3GF	808-802172-308-0	7-25
SCREW, PCBTSx3x12x3GF	808-802172-312-0	7-25
SHEET FEEDER 4213	136-261022-301-A	7-4

Figure 7-2 Family Tree-Pinwriter P22Q (8/11)

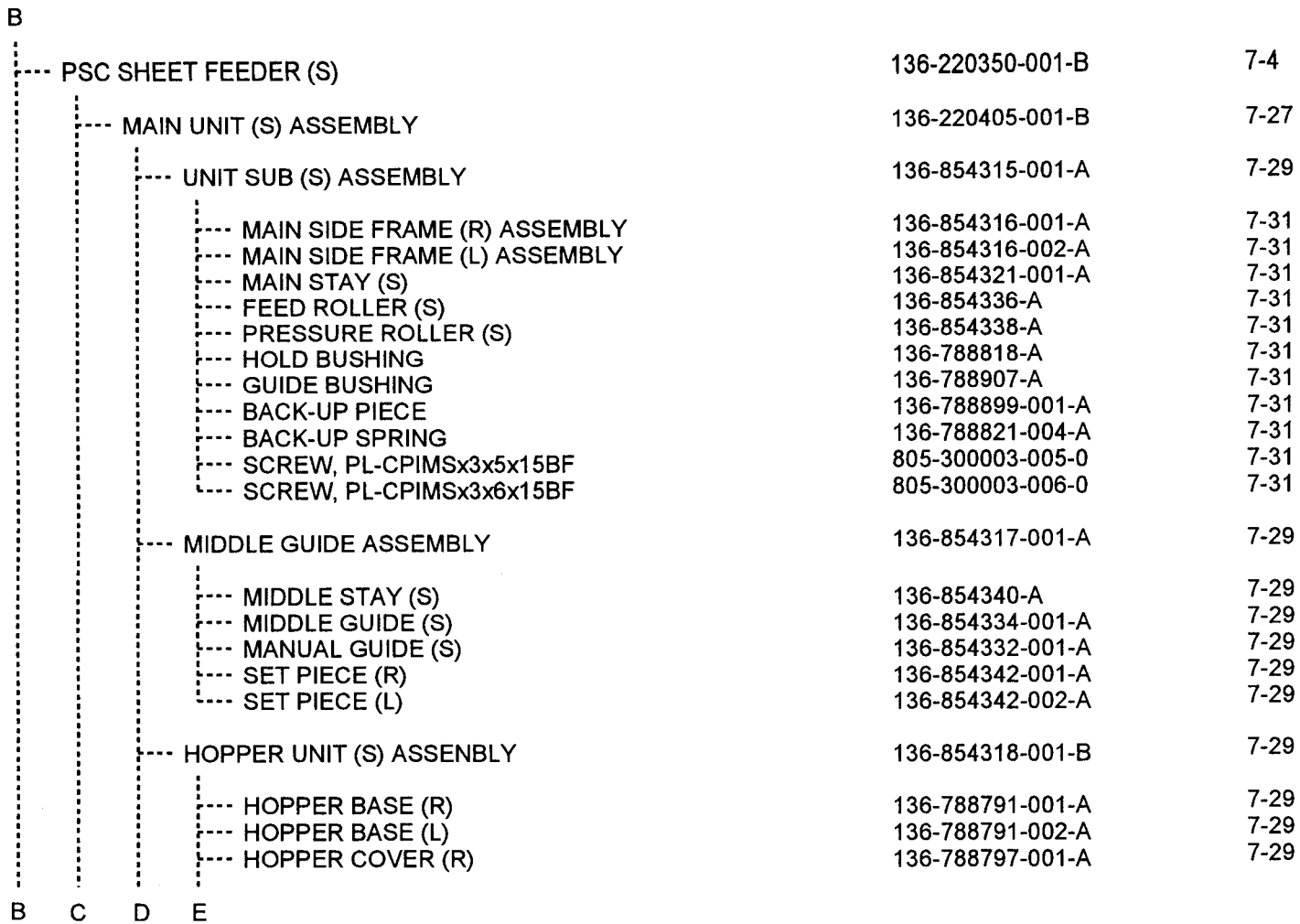

B
PSC SHEET FEEDER (S) 136-220350-001-B 7-4
MAIN UNIT (S) ASSEMBLY 136-220405-001-B 7-27
UNIT SUB (S) ASSEMBLY 136-854315-001-A 7-29
MAIN SIDE FRAME (R) ASSEMBLY 136-854316-001-A 7-31
MAIN SIDE FRAME (L) ASSEMBLY 136-854316-002-A 7-31
MAIN STAY (S) 136-854321-001-A 7-31
FEED ROLLER (S) 136-854336-A 7-31
PRESSURE ROLLER (S) 136-854338-A 7-31
HOLD BUSHING 136-788818-A 7-31
GUIDE BUSHING 136-788907-A 7-31
BACK-UP PIECE 136-788899-001-A 7-31
BACK-UP SPRING 136-788821-004-A 7-31
SCREW, PL-CPIMSx3x5x15BF 805-300003-005-0 7-31
SCREW, PL-CPIMSx3x6x15BF 805-300003-006-0 7-31
MIDDLE GUIDE ASSEMBLY 136-854317-001-A 7-29
MIDDLE STAY (S) 136-854340-A 7-29
MIDDLE GUIDE (S) 136-854334-001-A 7-29
MANUAL GUIDE (S) 136-854332-001-A 7-29
SET PIECE (R) 136-854342-001-A 7-29
SET PIECE (L) 136-854342-002-A 7-29
HOPPER UNIT (S) ASSENBLY 136-854318-001-B 7-29
HOPPER BASE (R) 136-788791-001-A 7-29
HOPPER BASE (L) 136-788791-002-A 7-29
HOPPER COVER (R) 136-788797-001-A 7-29
B C D E

Figure 7-2 Family Tree-Pinwriter P22Q (9/11)

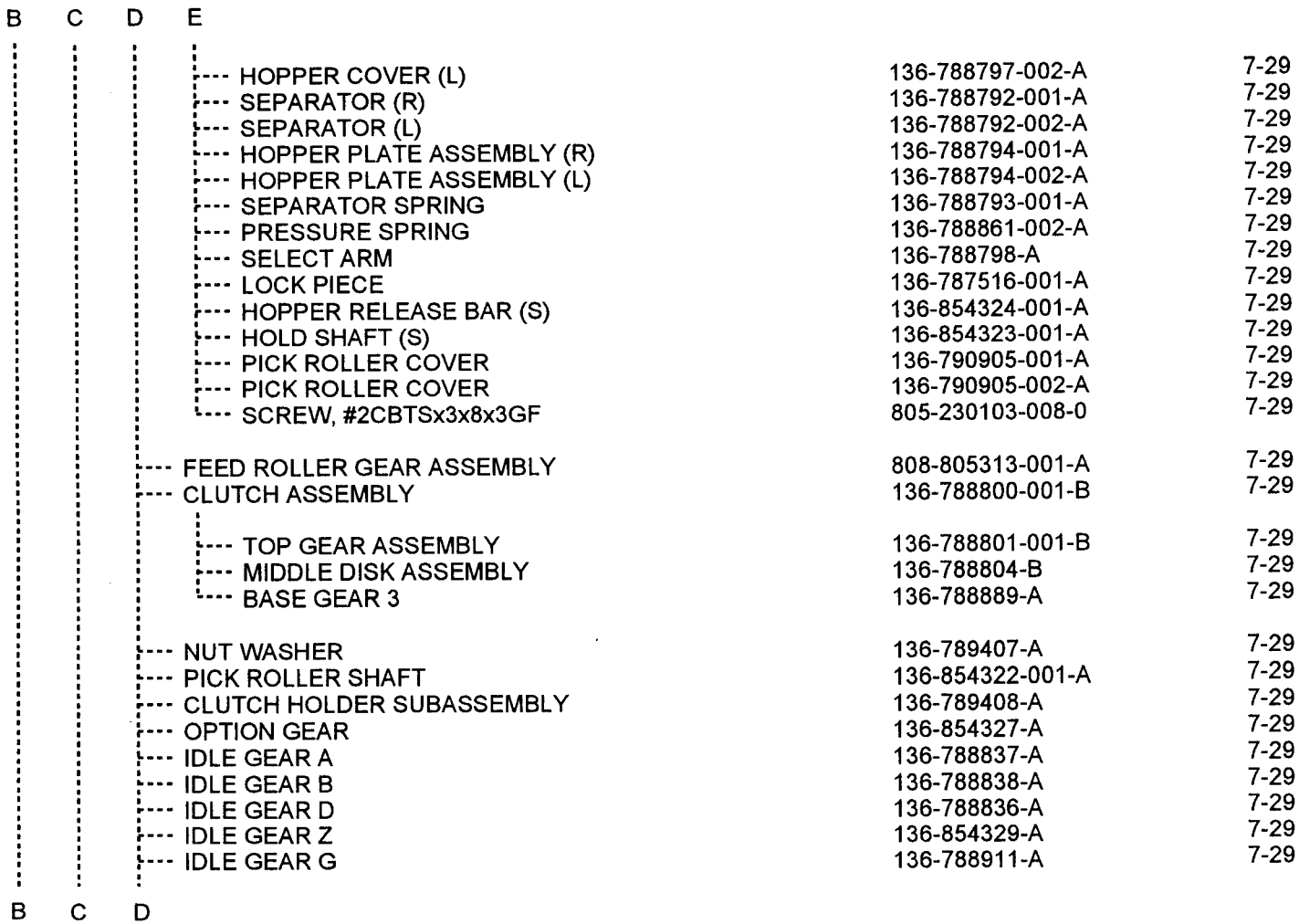

B C D E
HOPPER COVER (L) 136-788797-002-A 7-29
SEPARATOR (R) 136-788792-001-A 7-29
SEPARATOR (L) 136-788792-002-A 7-29
HOPPER PLATE ASSEMBLY (R) 136-788794-001-A 7-29
HOPPER PLATE ASSEMBLY (L) 136-788794-002-A 7-29
SEPARATOR SPRING 136-788793-001-A 7-29
PRESSURE SPRING 136-788861-002-A 7-29
SELECT ARM 136-788798-A 7-29
LOCK PIECE 136-787516-001-A 7-29
HOPPER RELEASE BAR (S) 136-854324-001-A 7-29
HOLD SHAFT (S) 136-854323-001-A 7-29
PICK ROLLER COVER 136-790905-001-A 7-29
PICK ROLLER COVER 136-790905-002-A 7-29
SCREW, #2CBTSx3x8x3GF 805-230103-008-0 7-29
FEED ROLLER GEAR ASSEMBLY 808-805313-001-A 7-29
CLUTCH ASSEMBLY 136-788800-001-B 7-29
TOP GEAR ASSEMBLY 136-788801-001-B 7-29
MIDDLE DISK ASSEMBLY 136-788804-B 7-29
BASE GEAR 3 136-788889-A 7-29
NUT WASHER 136-789407-A 7-29
PICK ROLLER SHAFT 136-854322-001-A 7-29
CLUTCH HOLDER SUBASSEMBLY 136-789408-A 7-29
OPTION GEAR 136-854327-A 7-29
IDLE GEAR A 136-788837-A 7-29
IDLE GEAR B 136-788838-A 7-29
IDLE GEAR D 136-788836-A 7-29
IDLE GEAR Z 136-854329-A 7-29
IDLE GEAR G 136-788911-A 7-29
B C D

Figure 7-2 Family Tree-Pinwriter P22Q (10/11)

B	C	D			
			PICK ROLLER GEAR	136-788841-A	7-29
			RELEASE LEVER (R)	136-854325-001-A	7-29
			RELEASE LEVER (L)	136-854325-002-A	7-29
			PICK ROLLER (R)	136-788811-001-A	7-29
			PICK ROLLER (L)	136-788811-002-A	7-29
			SELECT LEVER	136-788799-A	7-29
			EJECT SPRING	136-788863-005-A	7-29
			HOLD BUSHING	136-788818-A	7-29
			SIDE COVER (L)	136-854343-001-A	7-29
			SIDE COVER (R)	136-854344-002-A	7-29
			SCREW, PL-CPIMSx3x6x15BF	805-300003-006-0	7-29
			SCREW, PL-CPIMSx3x8x15BF	805-300003-008-0	7-29
			SCREW, SL-CPIMSx3x10x15BF	805-310003-010-0	7-29
			SCREW, SL-CPIMSx3x8x15BF	805-310003-008-0	7-29
			E RING (E-32)	803-010030-032-0	7-29
		STACKER GUIDE ASSEMBLY		136-788828-001-A	7-27
			STACKER GUIDE	136-788834-001-A	7-27
			PAPER GUIDE	136-788835-A	7-27
		CENTER GUIDE		136-788807-001-A	7-27
		HOPPER GUIDE BAR		136-788866-A	7-27
	CANOPY (S)			136-851399-001-A	7-4

NOTE: Dotted lines denote option.

*1 GRP 401 : for England
GRP 402 : for Germany
GRP 403 : for France
GRP 404 : for Scandinavia and Iberia

*2 GRP 001 : for Germany, France, Scandinavia and Iberia
GRP 002 : for England

*3 GRP 401 : English
GRP 402 : German

Figure 7-2 Family Tree-Pinwriter P22Q (11/11)

PART NAME	PART NUMBER	FIG. NO.
PINWRITER P32Q	136-220156-GRP-0*[1]	7-5
— PSC' PRINTER UNIT (W)	136-220402-901-A	7-5
— PSC' MECHANISM UNIT (W)	136-219414-901-A	7-7
— CARRIER ASSEMBLY (W)	136-850742-901-A	7-9
— CARRIER FRAME SUBASSEMBLY	136-850743-001-A	7-10
— TORQUE GEAR	136-850658-A	7-10
— IDLE GEAR	136-850659-A	7-10
— PLANETARY GEAR	136-850660-B	7-10
— PLANETARY ARM	136-850661-B	7-10
— FRICTION DISK	136-850663-A	7-10
— HEAD CLAMP (L)	136-850664-002-B	7-10
— HEAD CLAMP (R)	136-850664-001-B	7-10
— CR FG PLATE	136-850667-A	7-10
— CARIER CABLE (J) ASSEMBLY	808-847277-501-A	7-10
— MICROPITCH TIMING BELT	808-805290-501-A	7-10
— CR FG PLATE (A)	136-850791-A	7-10
— PLANETARY GEAR STOPPER	136-850799-A	7-10
— IDLE GEAR (INS)	136-858869-001-A	7-10
— SCREW, PCBTSx3x10x15BF	808-802045-310-0	7-10
— FRAME ASSEMBLY (W)	136-220398-901-A	7-9
— RIGHT SIDE FRAME SUBASSEMBLY	136-850746-A	7-12
— LEFT SIDE FRAME SUBASSEMBLY	136-850747-A	7-12
— FRONT STAY (W)	136-850703-501-A	7-12
— MAIN STAY (W)	136-850701-501-B	7-12
— PRESSURE SHEET (W)	136-850702-501-A	7-12
— FRAME FOOT BRACKET	136-850697-A	7-12

A B C D

Figure 7-3 Family Tree-Pinwriter P32Q (1/11)

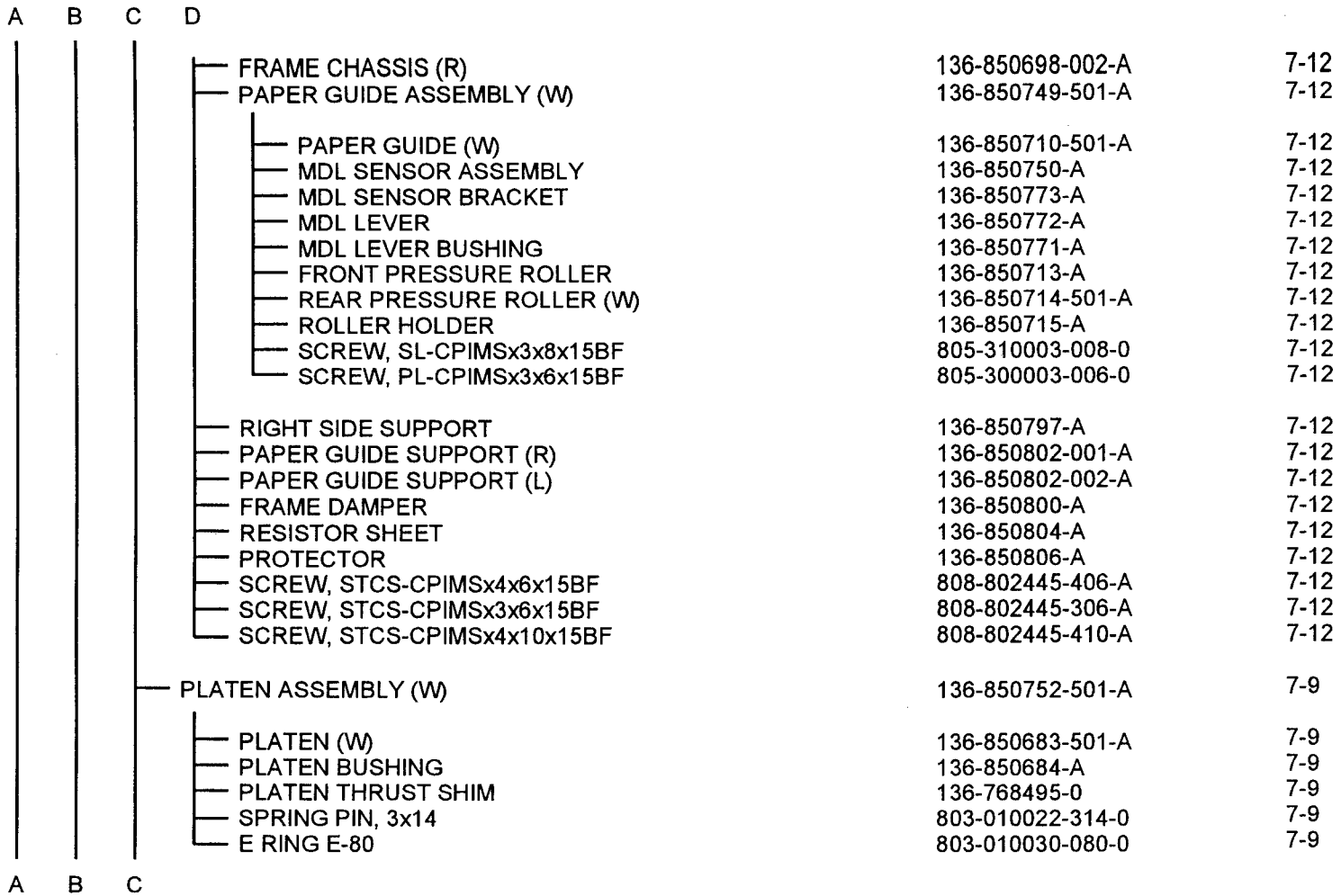

A B C D
FRAME CHASSIS (R) 136-850698-002-A 7-12
PAPER GUIDE ASSEMBLY (W) 136-850749-501-A 7-12
PAPER GUIDE (W) 136-850710-501-A 7-12
MDL SENSOR ASSEMBLY 136-850750-A 7-12
MDL SENSOR BRACKET 136-850773-A 7-12
MDL LEVER 136-850772-A 7-12
MDL LEVER BUSHING 136-850771-A 7-12
FRONT PRESSURE ROLLER 136-850713-A 7-12
REAR PRESSURE ROLLER (W) 136-850714-501-A 7-12
ROLLER HOLDER 136-850715-A 7-12
SCREW, SL-CPIMSx3x8x15BF 805-310003-008-0 7-12
SCREW, PL-CPIMSx3x6x15BF 805-300003-006-0 7-12
RIGHT SIDE SUPPORT 136-850797-A 7-12
PAPER GUIDE SUPPORT (R) 136-850802-001-A 7-12
PAPER GUIDE SUPPORT (L) 136-850802-002-A 7-12
FRAME DAMPER 136-850800-A 7-12
RESISTOR SHEET 136-850804-A 7-12
PROTECTOR 136-850806-A 7-12
SCREW, STCS-CPIMSx4x6x15BF 808-802445-406-A 7-12
SCREW, STCS-CPIMSx3x6x15BF 808-802445-306-A 7-12
SCREW, STCS-CPIMSx4x10x15BF 808-802445-410-A 7-12
PLATEN ASSEMBLY (W) 136-850752-501-A 7-9
PLATEN (W) 136-850683-501-A 7-9
PLATEN BUSHING 136-850684-A 7-9
PLATEN THRUST SHIM 136-768495-0 7-9
SPRING PIN, 3x14 803-010022-314-0 7-9
E RING E-80 803-010030-080-0 7-9
A B C

Figure 7-3 Family Tree-Pinwriter P32Q (2/11)

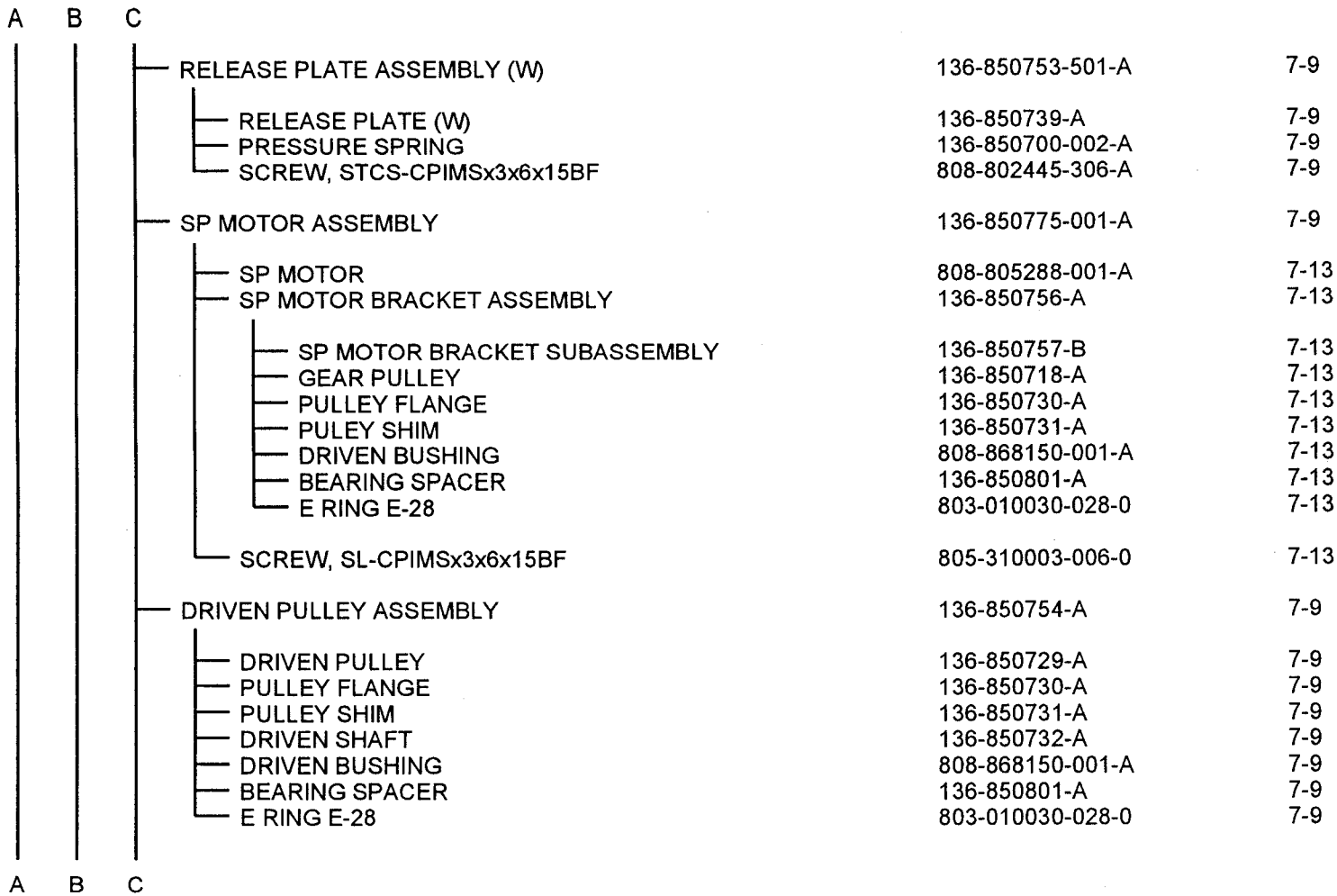

A B C
RELEASE PLATE ASSEMBLY (W) 136-850753-501-A 7-9
RELEASE PLATE (W) 136-850739-A 7-9
PRESSURE SPRING 136-850700-002-A 7-9
SCREW, STCS-CPIMSx3x6x15BF 808-802445-306-A 7-9
SP MOTOR ASSEMBLY 136-850775-001-A 7-9
SP MOTOR 808-805288-001-A 7-13
SP MOTOR BRACKET ASSEMBLY 136-850756-A 7-13
SP MOTOR BRACKET SUBASSEMBLY 136-850757-B 7-13
GEAR PULLEY 136-850718-A 7-13
PULLEY FLANGE 136-850730-A 7-13
PULEY SHIM 136-850731-A 7-13
DRIVEN BUSHING 808-868150-001-A 7-13
BEARING SPACER 136-850801-A 7-13
E RING E-28 803-010030-028-0 7-13
SCREW, SL-CPIMSx3x6x15BF 805-310003-006-0 7-13
DRIVEN PULLEY ASSEMBLY 136-850754-A 7-9
DRIVEN PULLEY 136-850729-A 7-9
PULLEY FLANGE 136-850730-A 7-9
PULLEY SHIM 136-850731-A 7-9
DRIVEN SHAFT 136-850732-A 7-9
DRIVEN BUSHING 808-868150-001-A 7-9
BEARING SPACER 136-850801-A 7-9
E RING E-28 803-010030-028-0 7-9
A B C

Figure 7-3 Family Tree-Pinwriter P32Q (3/11)

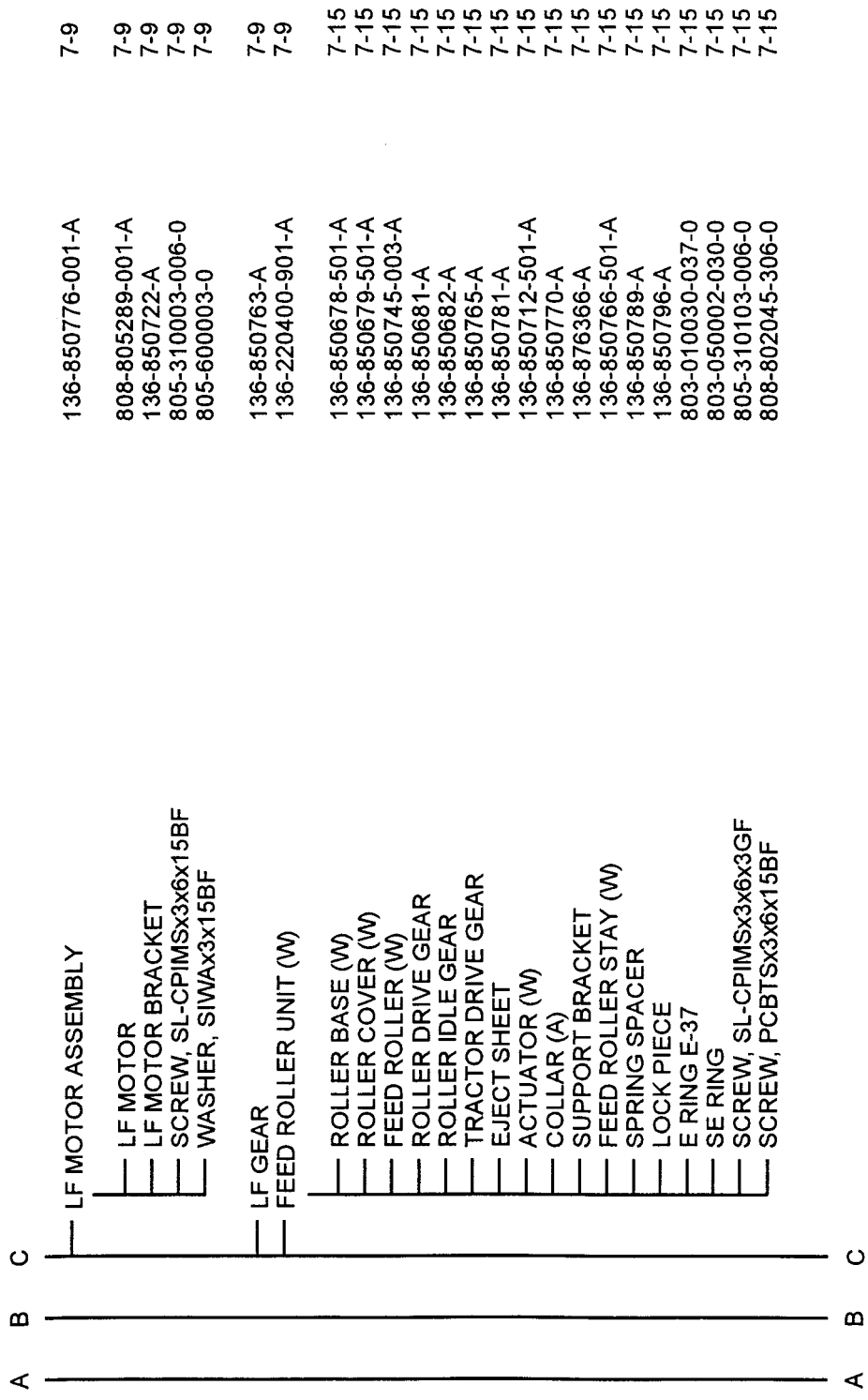


Figure 7-3 Family Tree-Pinwriter P32Q (4/11)

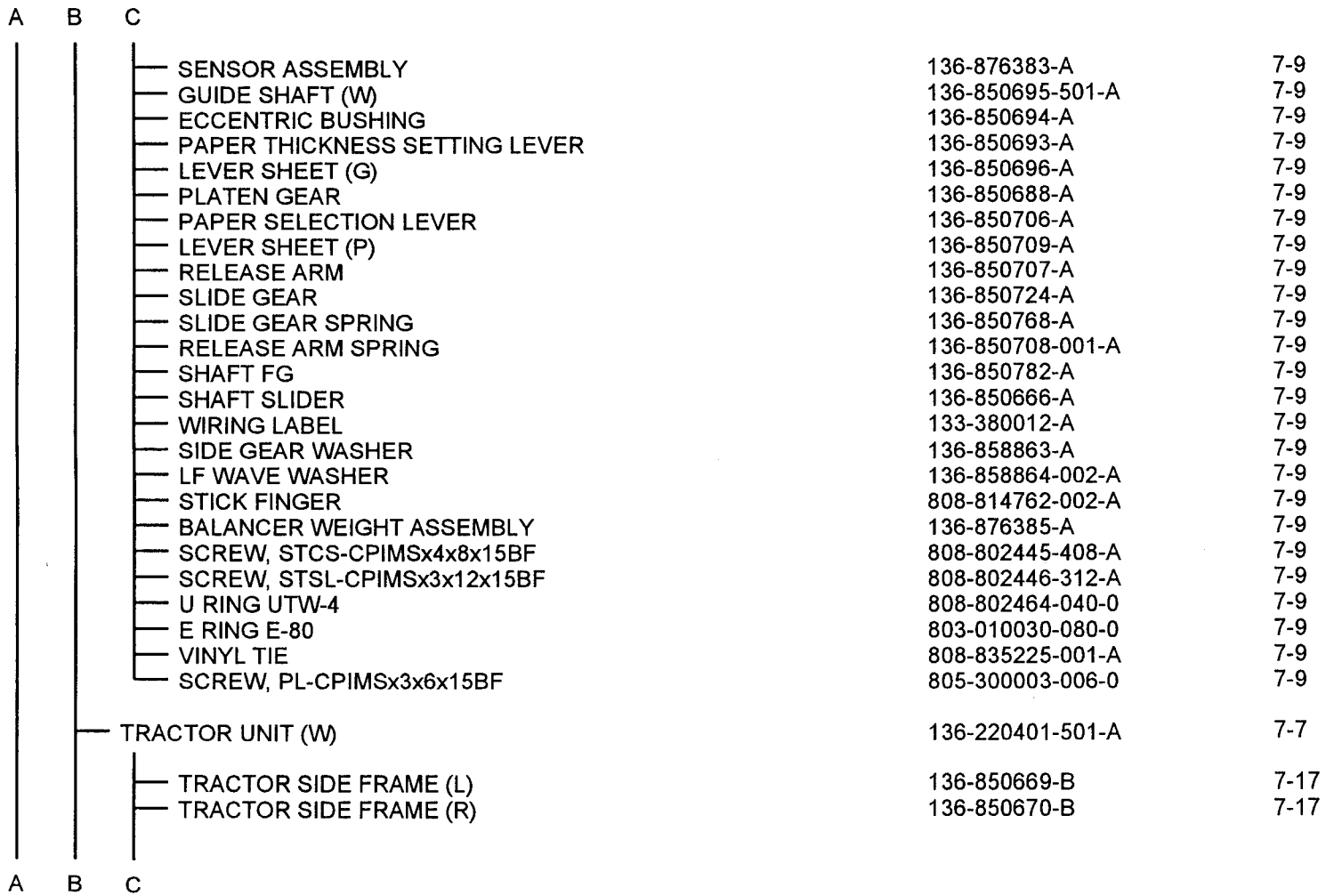

A B C
SENSOR ASSEMBLY 136-876383-A 7-9
GUIDE SHAFT (W) 136-850695-501-A 7-9
ECCENTRIC BUSHING 136-850694-A 7-9
PAPER THICKNESS SETTING LEVER 136-850693-A 7-9
LEVER SHEET (G) 136-850696-A 7-9
PLATEN GEAR 136-850688-A 7-9
PAPER SELECTION LEVER 136-850706-A 7-9
LEVER SHEET (P) 136-850709-A 7-9
RELEASE ARM 136-850707-A 7-9
SLIDE GEAR 136-850724-A 7-9
SLIDE GEAR SPRING 136-850768-A 7-9
RELEASE ARM SPRING 136-850708-001-A 7-9
SHAFT FG 136-850782-A 7-9
SHAFT SLIDER 136-850666-A 7-9
WIRING LABEL 133-380012-A 7-9
SIDE GEAR WASHER 136-858863-A 7-9
LF WAVE WASHER 136-858864-002-A 7-9
STICK FINGER 808-814762-002-A 7-9
BALANCER WEIGHT ASSEMBLY 136-876385-A 7-9
SCREW, STCS-CPIMSx4x8x15BF 808-802445-408-A 7-9
SCREW, STSL-CPIMSx3x12x15BF 808-802446-312-A 7-9
U RING UTW-4 808-802464-040-0 7-9
E RING E-80 803-010030-080-0 7-9
VINYL TIE 808-835225-001-A 7-9
SCREW, PL-CPIMSx3x6x15BF 805-300003-006-0 7-9
TRACTOR UNIT (W) 136-220401-501-A 7-7
TRACTOR SIDE FRAME (L) 136-850669-B 7-17
TRACTOR SIDE FRAME (R) 136-850670-B 7-17
A B C

Figure 7-3 Family Tree-Pinwriter P32Q (5/11)

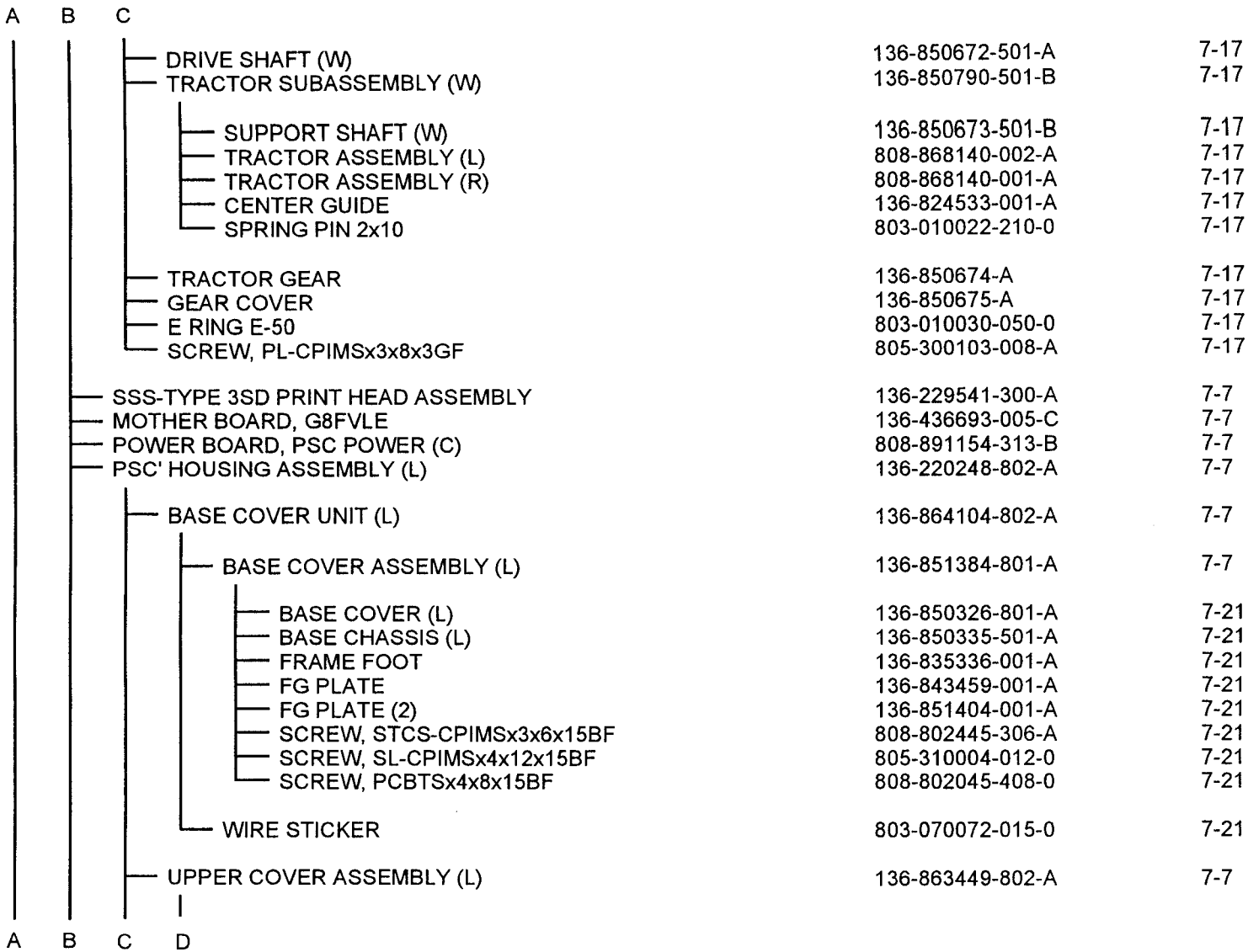


Figure 7-3 Family Tree-Pinwriter P32Q (6/11)

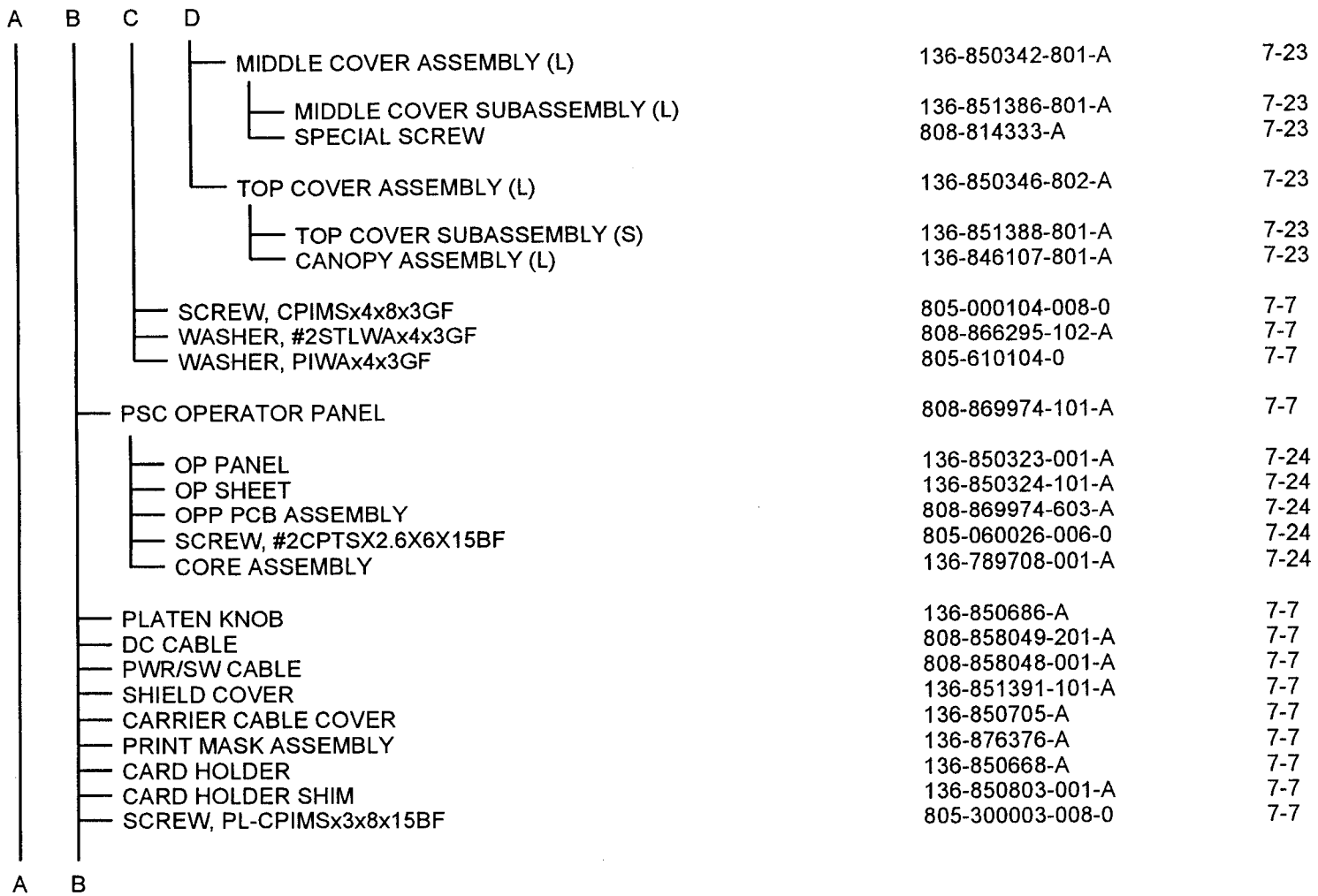

A B C D
MIDDLE COVER ASSEMBLY (L) 136-850342-801-A 7-23
MIDDLE COVER SUBASSEMBLY (L) 136-851386-801-A 7-23
SPECIAL SCREW 808-814333-A 7-23
TOP COVER ASSEMBLY (L) 136-850346-802-A 7-23
TOP COVER SUBASSEMBLY (S) 136-851388-801-A 7-23
CANOPY ASSEMBLY (L) 136-846107-801-A 7-23
SCREW, CPIMSx4x8x3GF 805-000104-008-0 7-7
WASHER, #2STLWAx4x3GF 808-866295-102-A 7-7
WASHER, PIWAx4x3GF 805-610104-0 7-7
PSC OPERATOR PANEL 808-869974-101-A 7-7
OP PANEL 136-850323-001-A 7-24
OP SHEET 136-850324-101-A 7-24
OPP PCB ASSEMBLY 808-869974-603-A 7-24
SCREW, #2CPTSX2.6X6X15BF 805-060026-006-0 7-24
CORE ASSEMBLY 136-789708-001-A 7-24
PLATEN KNOB 136-850686-A 7-7
DC CABLE 808-858049-201-A 7-7
PWR/SW CABLE 808-858048-001-A 7-7
SHIELD COVER 136-851391-101-A 7-7
CARRIER CABLE COVER 136-850705-A 7-7
PRINT MASK ASSEMBLY 136-876376-A 7-7
CARD HOLDER 136-850668-A 7-7
CARD HOLDER SHIM 136-850803-001-A 7-7
SCREW, PL-CPIMSx3x8x15BF 805-300003-008-0 7-7
A B

Figure 7-3 Family Tree-Pinwriter P32Q (7/11)

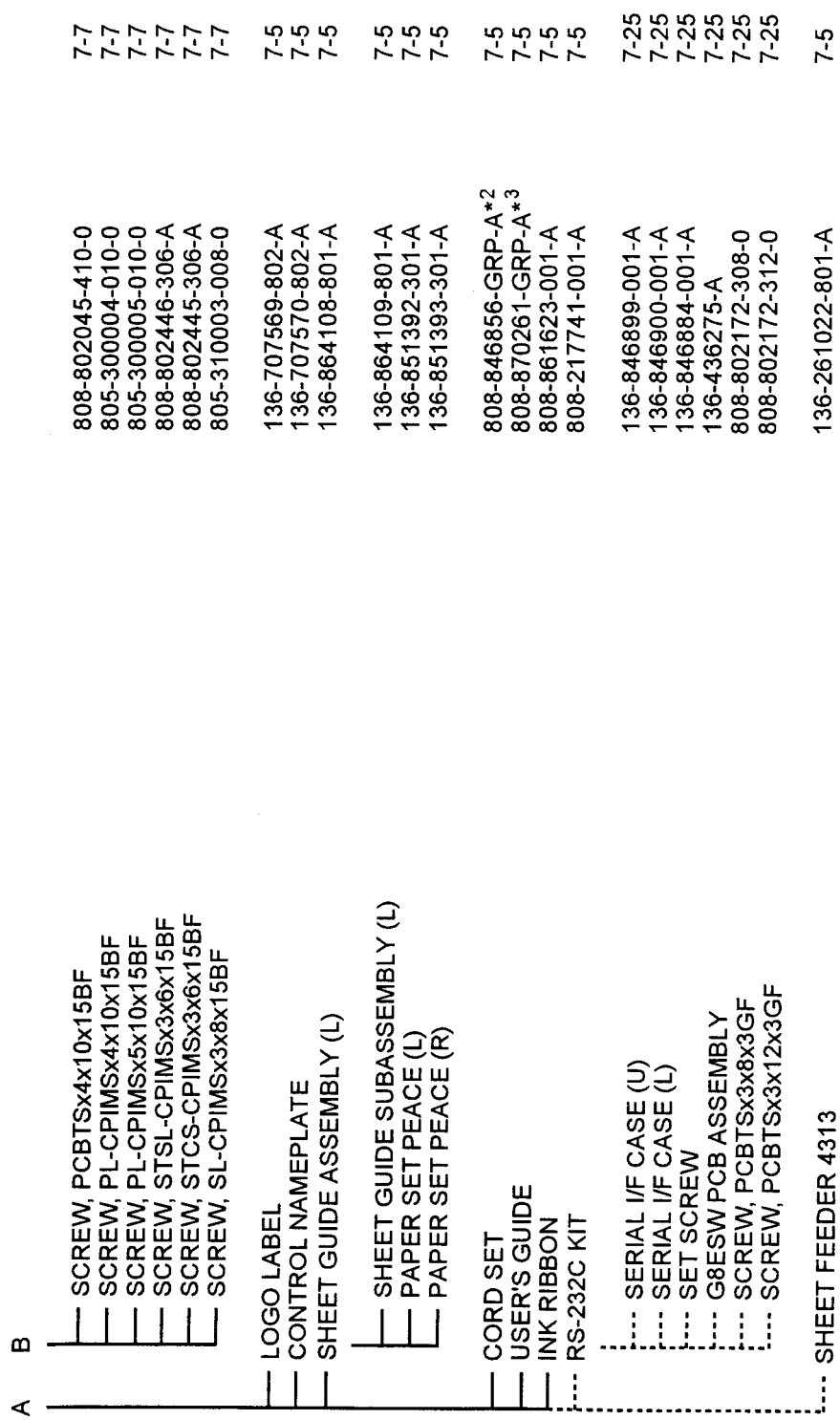


Figure 7-3 Family Tree-Pinwriter P32Q (8/11)

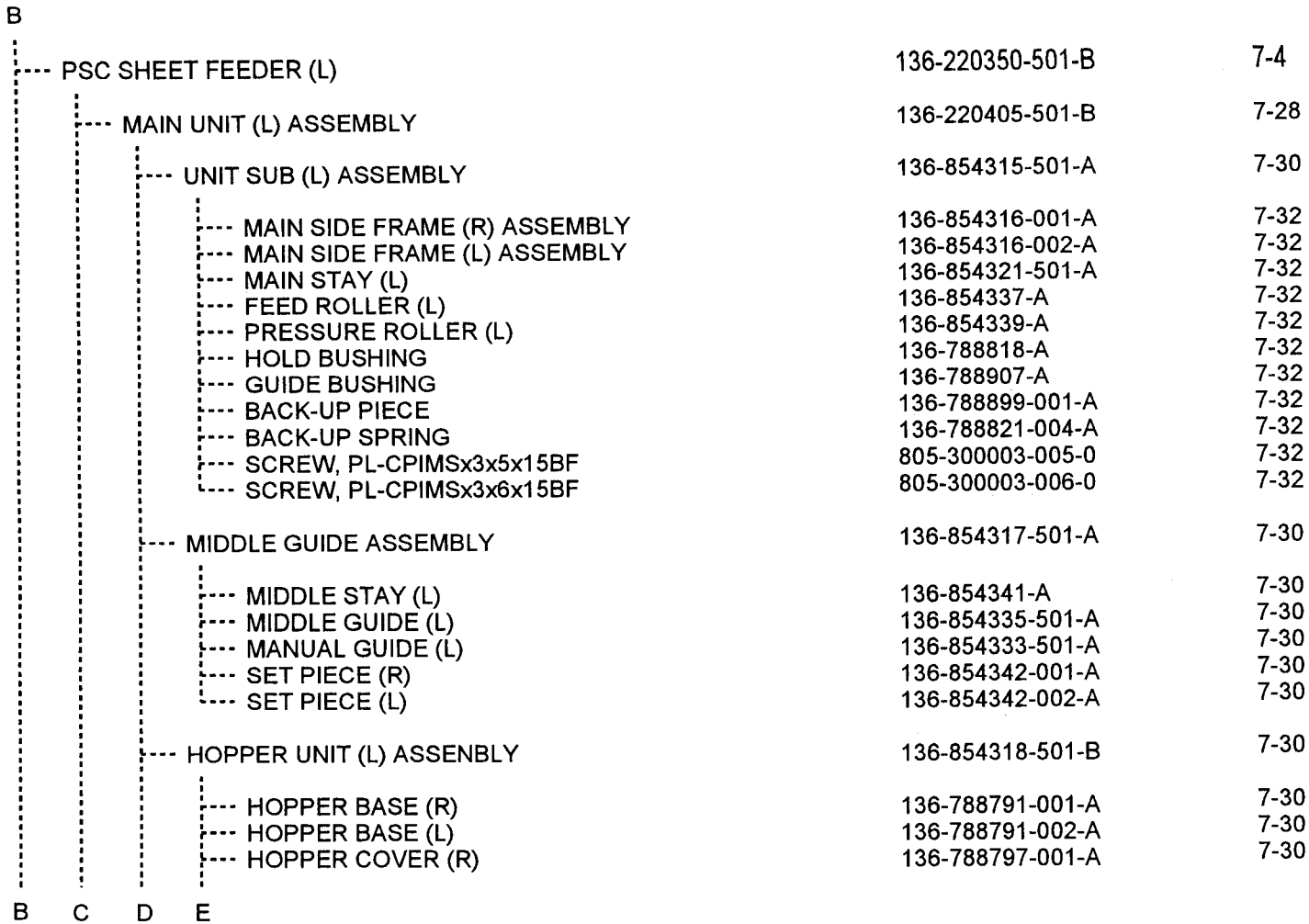

B
PSC SHEET FEEDER (L) 136-220350-501-B 7-4
MAIN UNIT (L) ASSEMBLY 136-220405-501-B 7-28
UNIT SUB (L) ASSEMBLY 136-854315-501-A 7-30
MAIN SIDE FRAME (R) ASSEMBLY 136-854316-001-A 7-32
MAIN SIDE FRAME (L) ASSEMBLY 136-854316-002-A 7-32
MAIN STAY (L) 136-854321-501-A 7-32
FEED ROLLER (L) 136-854337-A 7-32
PRESSURE ROLLER (L) 136-854339-A 7-32
HOLD BUSHING 136-788818-A 7-32
GUIDE BUSHING 136-788907-A 7-32
BACK-UP PIECE 136-788899-001-A 7-32
BACK-UP SPRING 136-788821-004-A 7-32
SCREW, PL-CPIMSx3x5x15BF 805-300003-005-0 7-32
SCREW, PL-CPIMSx3x6x15BF 805-300003-006-0 7-32
MIDDLE GUIDE ASSEMBLY 136-854317-501-A 7-30
MIDDLE STAY (L) 136-854341-A 7-30
MIDDLE GUIDE (L) 136-854335-501-A 7-30
MANUAL GUIDE (L) 136-854333-501-A 7-30
SET PIECE (R) 136-854342-001-A 7-30
SET PIECE (L) 136-854342-002-A 7-30
HOPPER UNIT (L) ASSENBLY 136-854318-501-B 7-30
HOPPER BASE (R) 136-788791-001-A 7-30
HOPPER BASE (L) 136-788791-002-A 7-30
HOPPER COVER (R) 136-788797-001-A 7-30
B C D E

Figure 7-3 Family Tree-Pinwriter P32Q (9/11)

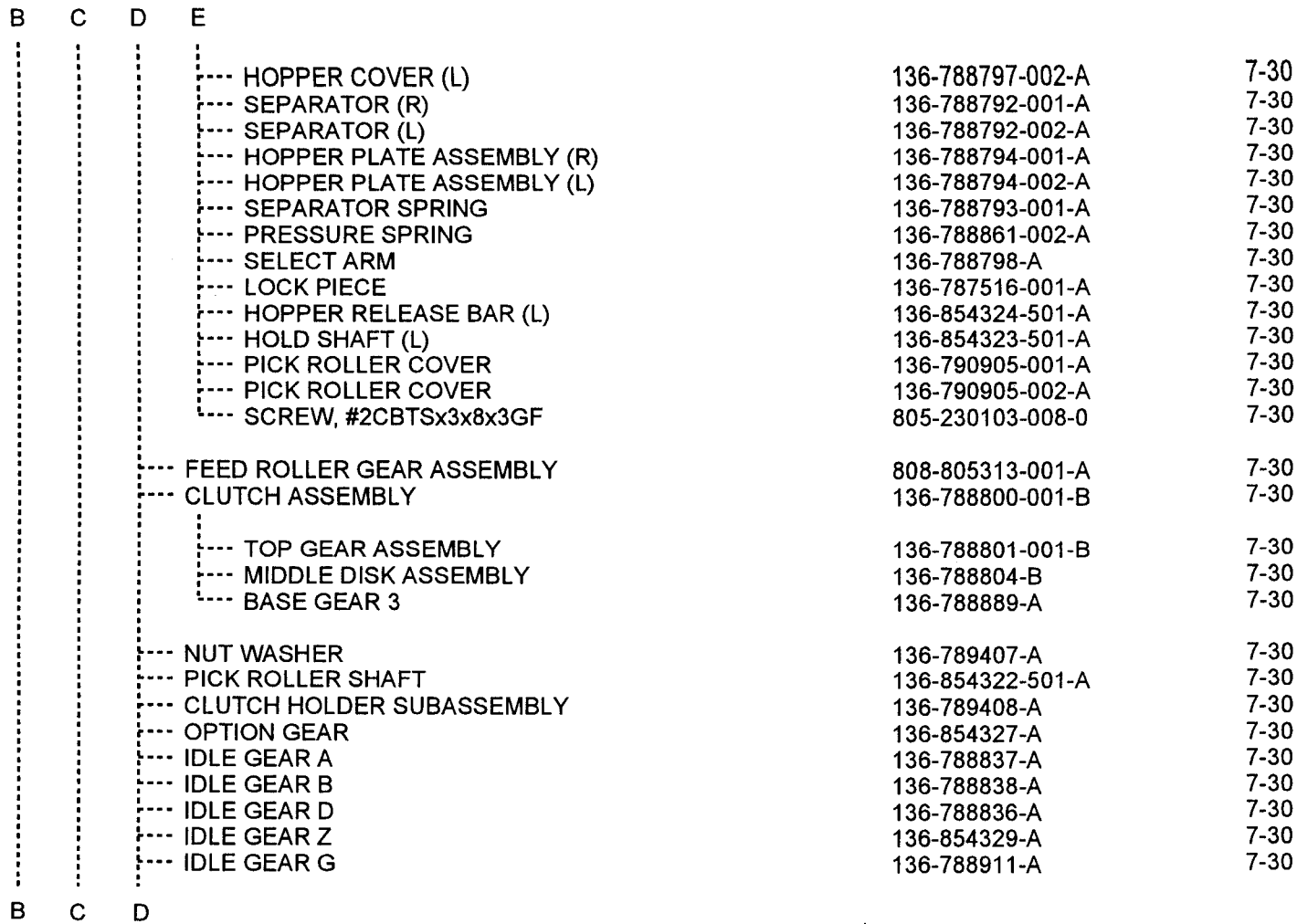
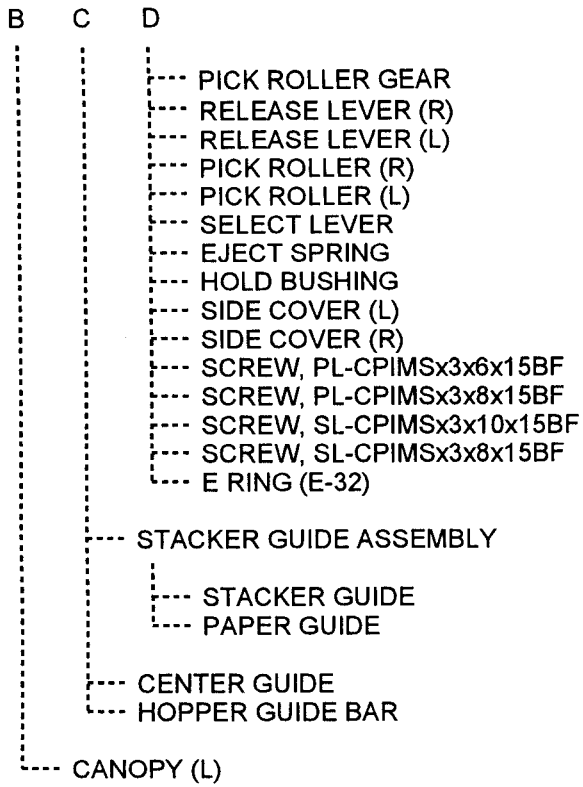

B C D E
HOPPER COVER (L) 136-788797-002-A 7-30
SEPARATOR (R) 136-788792-001-A 7-30
SEPARATOR (L) 136-788792-002-A 7-30
HOPPER PLATE ASSEMBLY (R) 136-788794-001-A 7-30
HOPPER PLATE ASSEMBLY (L) 136-788794-002-A 7-30
SEPARATOR SPRING 136-788793-001-A 7-30
PRESSURE SPRING 136-788861-002-A 7-30
SELECT ARM 136-788798-A 7-30
LOCK PIECE 136-787516-001-A 7-30
HOPPER RELEASE BAR (L) 136-854324-501-A 7-30
HOLD SHAFT (L) 136-854323-501-A 7-30
PICK ROLLER COVER 136-790905-001-A 7-30
PICK ROLLER COVER 136-790905-002-A 7-30
SCREW, #2CBTSx3x8x3GF 805-230103-008-0 7-30
FEED ROLLER GEAR ASSEMBLY 808-805313-001-A 7-30
CLUTCH ASSEMBLY 136-788800-001-B 7-30
TOP GEAR ASSEMBLY 136-788801-001-B 7-30
MIDDLE DISK ASSEMBLY 136-788804-B 7-30
BASE GEAR 3 136-788889-A 7-30
NUT WASHER 136-789407-A 7-30
PICK ROLLER SHAFT 136-854322-501-A 7-30
CLUTCH HOLDER SUBASSEMBLY 136-789408-A 7-30
OPTION GEAR 136-854327-A 7-30
IDLE GEAR A 136-788837-A 7-30
IDLE GEAR B 136-788838-A 7-30
IDLE GEAR D 136-788836-A 7-30
IDLE GEAR Z 136-854329-A 7-30
IDLE GEAR G 136-788911-A 7-30
B C D

Figure 7-3 Family Tree-Pinwriter P32Q (10/11)



PICK ROLLER GEAR	136-788841-A	7-30
RELEASE LEVER (R)	136-854325-001-A	7-30
RELEASE LEVER (L)	136-854325-002-A	7-30
PICK ROLLER (R)	136-788811-001-A	7-30
PICK ROLLER (L)	136-788811-002-A	7-30
SELECT LEVER	136-788799-A	7-30
EJECT SPRING	136-788863-005-A	7-30
HOLD BUSHING	136-788818-A	7-30
SIDE COVER (L)	136-854343-001-A	7-30
SIDE COVER (R)	136-854344-002-A	7-30
SCREW, PL-CPIMSx3x6x15BF	805-300003-006-0	7-30
SCREW, PL-CPIMSx3x8x15BF	805-300003-008-0	7-30
SCREW, SL-CPIMSx3x10x15BF	805-310003-010-0	7-30
SCREW, SL-CPIMSx3x8x15BF	805-310003-008-0	7-30
E RING (E-32)	803-010030-032-0	7-30
STACKER GUIDE ASSEMBLY	136-788828-001-A	7-28
STACKER GUIDE	136-788834-001-A	7-28
PAPER GUIDE	136-788835-A	7-28
CENTER GUIDE	136-788807-001-A	7-28
HOPPER GUIDE BAR	136-788866-A	7-28
CANOPY (L)	136-851400-501-A	7-5

NOTE: Dotted lines denote option.

*1 GRP 901 : for England
GRP 902 : for Germany
GRP 903 : for France
GRP 904 : for Scandinavia and Iberia

*2 GRP 001 : for Germany, France, Scandinavia and Iberia
GRP 002 : for England

*3 GRP 401 : English
GRP 402 : German

Figure 7-3 Family Tree-Pinwriter P32Q (11/11)

Pinwriter P22Q (136-220156-GRP*-0)

ITEM	PART NAME	PART NUMBER	QUANTITY 401	402	403	404
1	PSC' Printer Unit (N) (See Figure 7-4 for breakdown)	136-220402-401-A**	1	1	1	1
2	Logo Label	136-707569-302-A**	1	1	1	1
3	Control Nameplate	136-707570-302-A**	1	1	1	1
4	Sheet Guide Assembly (S)	136-864108-301-A	1	1	1	1
4-1	Sheet Guide Subassembly (S)	136-864109-301-A	1	1	1	1
4-2	Paper Set Peace (L)	136-851392-301-A	1	1	1	1
4-3	Paper Set Peace (R)	136-851393-301-A	1	1	1	1
5	Cord Set	808-846856-001-A**	–	1	1	1
5	Cord Set	808-846856-002-A**	1	–	–	–
6	User's Guide	808-870261-401-A**	1	–	–	1
6	User's Guide	808-870261-402-A**	–	1	–	–
7	Ink Ribbon	808-861623-001-A**	1	1	1	1
Optional Parts:						
8	RS-232C Kit (See Figure 7-25 for breakdown)	808-217741-001-A**	1	1	1	1
9	Sheet Feeder 4213	136-261022-301-A**	1	1	1	1
9-1	PSC Sheet Feeder (S) (See Figure 7-27 for breakdown)	136-220350-001-B**	1	1	1	1
9-2	Canopy (S)	136-851399-001-A**	1	1	1	1

* GRP 401: for England
GRP 402: for Germany
GRP 403: for France
GRP 404: for Scandinavia and Iberia

** Not available as a spare part.

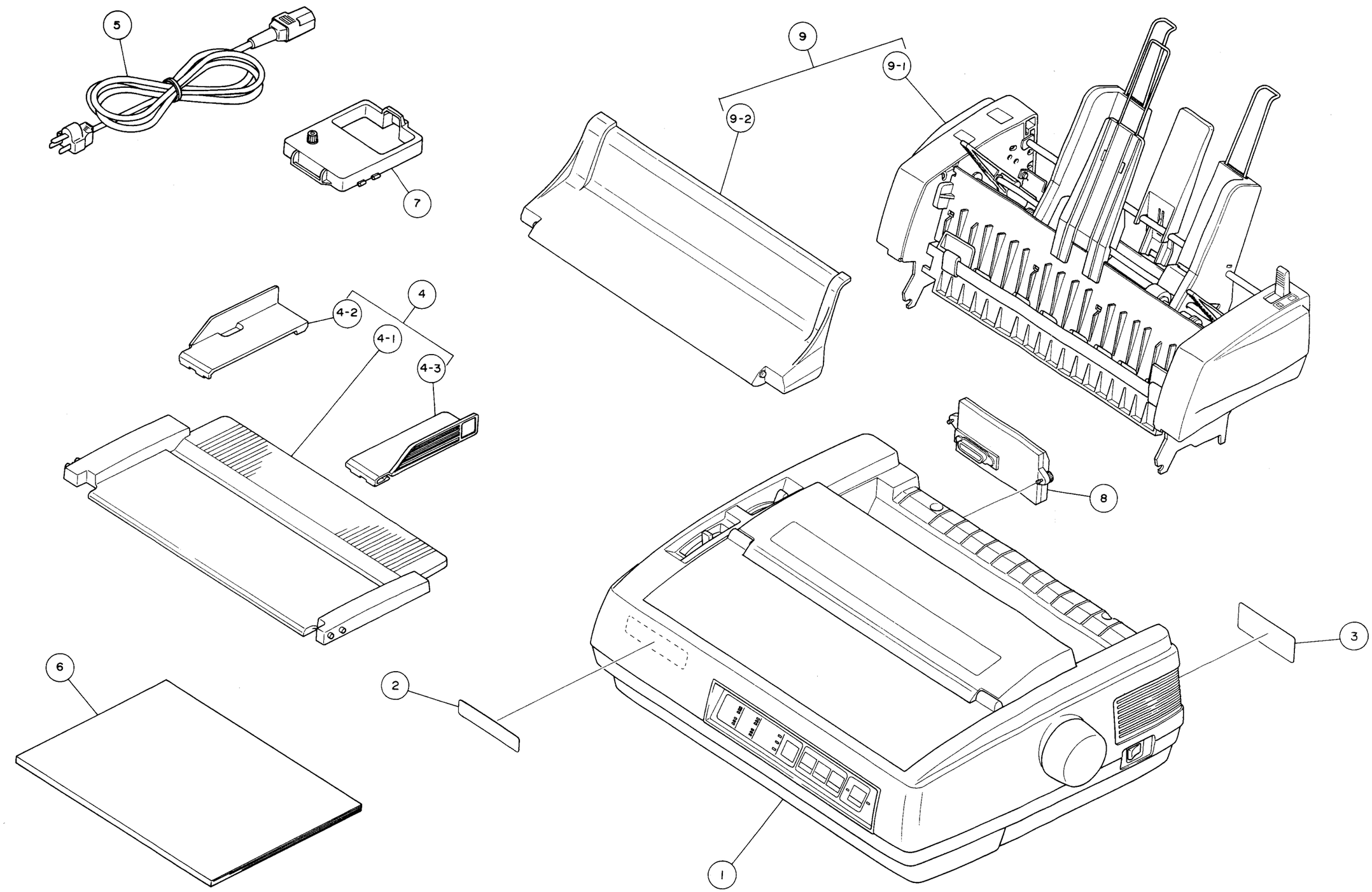


Figure 7-4 Pinwriter P22Q

Pinwriter P32Q (136-220156-GRP*-0)

ITEM	PART NAME	PART NUMBER	QUANTITY 901	902	903	904
1	PSC' Printer Unit (W) (See Figure 7-5 for breakdown)	136-220402-901-A**	1	1	1	1
2	Logo Label	136-707569-802-A**	1	1	1	1
3	Control Nameplate	136-707570-802-A**	1	1	1	1
4	Sheet Guide Assembly (L)	136-864108-801-A	1	1	1	1
4-1	Sheet Guide Subassembly (L)	136-864109-801-A	1	1	1	1
4-2	Paper Set Peace (L)	136-851392-301-A	1	1	1	1
4-3	Paper Set Peace (R)	136-851393-301-A	1	1	1	1
5	Cord Set	808-846856-001-A**	–	1	1	1
5	Cord Set	808-846856-002-A**	1	–	–	–
6	User's Guide	808-870261-401-A**	1	–	–	1
6	User's Guide	808-870261-402-A**	–	1	–	–
7	Ink Ribbon	808-861623-001-A**	1	1	1	1
Optional Parts:						
8	RS-232C Kit (See Figure 7-25 for breakdown)	808-217741-001-A**	1	1	1	1
9	Sheet Feeder 4313	136-261022-801-A**	1	1	1	1
9-1	PSC Sheet Feeder (L) (See Figure 7-28 for breakdown)	136-220350-501-B**	1	1	1	1
9-2	Canopy (L)	136-851400-501-A**	1	1	1	1

* GRP 901: for England
GRP 902: for Germany
GRP 903: for France
GRP 904: for Scandinavia and Iberia

** Not available as a spare part.

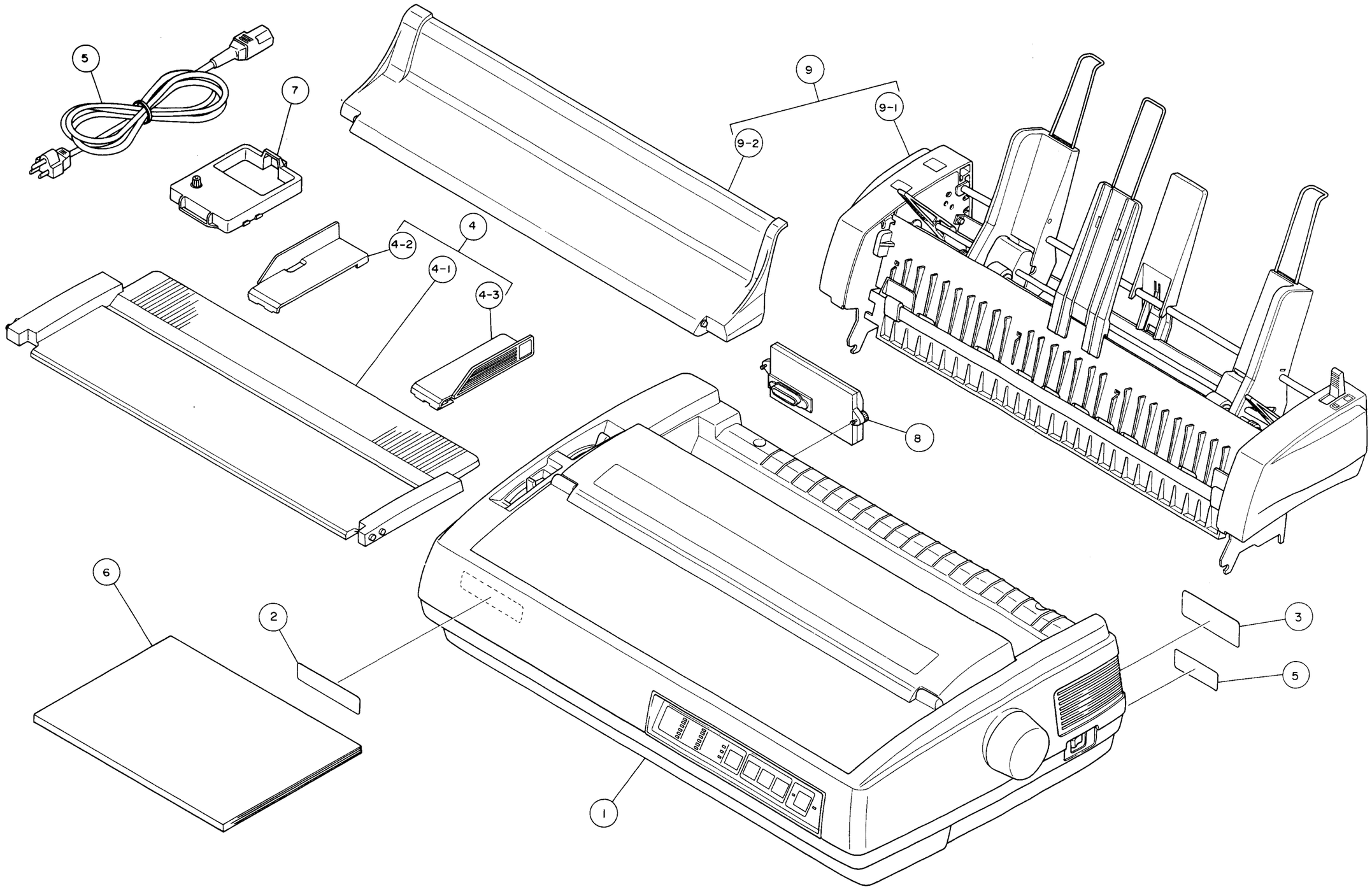


Figure 7-5 Pinwriter P32Q

PSC' Printer Unit (N) (136-220402-401-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	PSC' Mechanism Unit (N) (See Figure 7-8 for breakdown)	136-219414-401-A*	1
2	Tractor Unit (N) (See Figure 7-16 for breakdown)	136-220401-001-A	1
3	SSS-Type 3SD Print Head Assembly	136-229541-300-A	1
4	Mother Board, G8FVLE (See Figure 7-18 for breakdown)	136-436693-005-C	1
5	Power Board, PSC Power (C) (See Figure 7-19 for breakdown)	808-891154-313-B	1
6	PSC' Housing Assembly (S)	136-220248-302-A*	1
6-1	Base Cover Assembly (S) (See Figure 7-20 for breakdown)	136-851384-301-A	1
6-2	Upper Cover Assembly (S) (See Figure 7-22 for breakdown)	136-863449-302-A*	1
6-201	Screw, CPIMSx4x8x3GF	805-000104-008-0*	1
6-202	Washer, #2STLWAx4x3xGF	808-866295-102-A*	1
6-203	Washer, PIWAx4x3GF	805-610104-0*	1
7	PSC Operator Panel (See Figure 7-24 for breakdown)	808-869974-101-A	1
8	Platen Knob	136-850686-A	1
9	DC Cable	808-858049-101-A	1
10	PWR/SW Cable	808-858048-001-A	1
11	Shield Cover	136-851391-101-A	1
12	Carrier Cable Cover	136-850705-A	1
13	Print Mask Assembly	136-876376-A*	1
14	Card Holder	136-850668-A*	1
15	Card Holder Shim	136-850803-001-A*	1
201	Screw, PL-CPIMSx3x8x15BF	805-300003-008-0*	15
202	Screw, PCBTSx4x10x15BF	808-802045-410-0*	2
203	Screw, PL-CPIMSx4x10x3GF	805-300104-010-0*	1
204	Screw, PL-CPIMSx5x10x15BF	805-300005-010-0*	4
205	Screw, STSL-CPIMSx3x8x15BF	808-802446-308-A*	1
206	Screw, CS-CPIMSx3x7x15BF	808-830044-307-0	3
207	Screw, SL-CPIMSx3x8x15BF	805-310003-008-0	2

* Not available as a spare part.

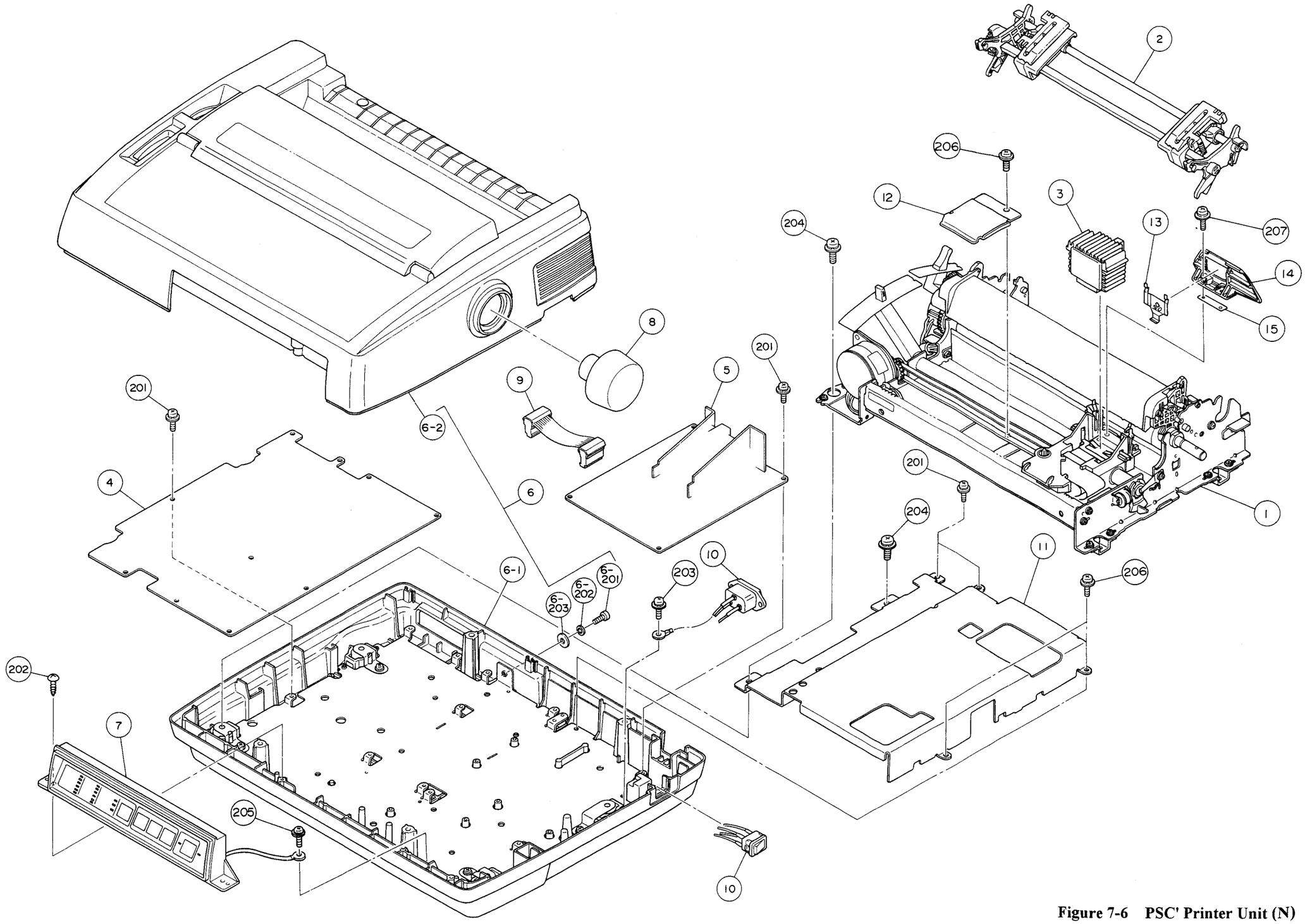


Figure 7-6 PSC' Printer Unit (N)

PSC' Printer Unit (W) (136-220402-901-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	PSC' Mechanism Unit (W) (See Figure 7-9 for breakdown)	136-219414-901-A*	1
2	Tractor Unit (W) (See Figure 7-17 for breakdown)	136-220401-501-A	1
3	SSS-Type 3SD Print Head Assembly	136-229541-300-A	1
4	Mother Board, G8FVLE (See Figure 7-18 for breakdown)	136-436693-005-C	1
5	Power Board, PSC Power (C) (See Figure 7-19 for breakdown)	808-891154-313-B	1
6	Housing Assembly (L)	136-220248-802-A*	1
6-1	Base Cover Unit (L)	136-864104-802-A	1
6-1-1	Base Cover Assembly (L) (See Figure 7-21 for breakdown)	136-851384-801-A	1
6-1-2	Wire Sticker	803-070072-015-0	1
6-2	Upper Cover Assembly (L) (See Figure 7-23 for breakdown)	136-863449-802-A*	1
6-201	Screw, CPIMSx4x8x3GF	805-000104-008-0*	1
6-202	Washer, #2STLWAx4x3xGF	808-866295-102-A*	1
6-203	Washer, PIWAx4x3GF	805-610104-0*	1
7	PSC Operator Panel (See Figure 7-24 for breakdown)	808-869974-101-A	1
8	Platen Knob	136-850686-A	1
9	DC Cable	808-858049-201-A	1
10	PWR/SW Cable	808-858048-001-A	1
11	Shield Cover	136-851391-101-A	1
12	Carrier Cable Cover	136-850705-A	1
13	Print Mask Assembly	136-876376-A*	1
14	Card Holder	136-850668-A*	1
15	Card Holder Shim	136-850803-001-A*	1
201	Screw, PL-CPIMSx3x8x15BF	805-300003-008-0*	15
202	Screw, PCBTSx4x10x15BF	808-802045-410-0*	2
203	Screw, PL-CPIMSx4x10x3GF	805-300004-010-0*	1
204	Screw, PL-CPIMSx5x10x15BF	805-300005-010-0*	4
205	Screw, STSL-CPIMSx3x8x15BF	808-802446-308-A*	1
206	Screw, CS-CPIMSx3x7x15BF	808-830044-307-0	3
207	Screw, SL-CPIMSx3x8x15BF	805-310003-008-0	2

* Not available as a spare part.

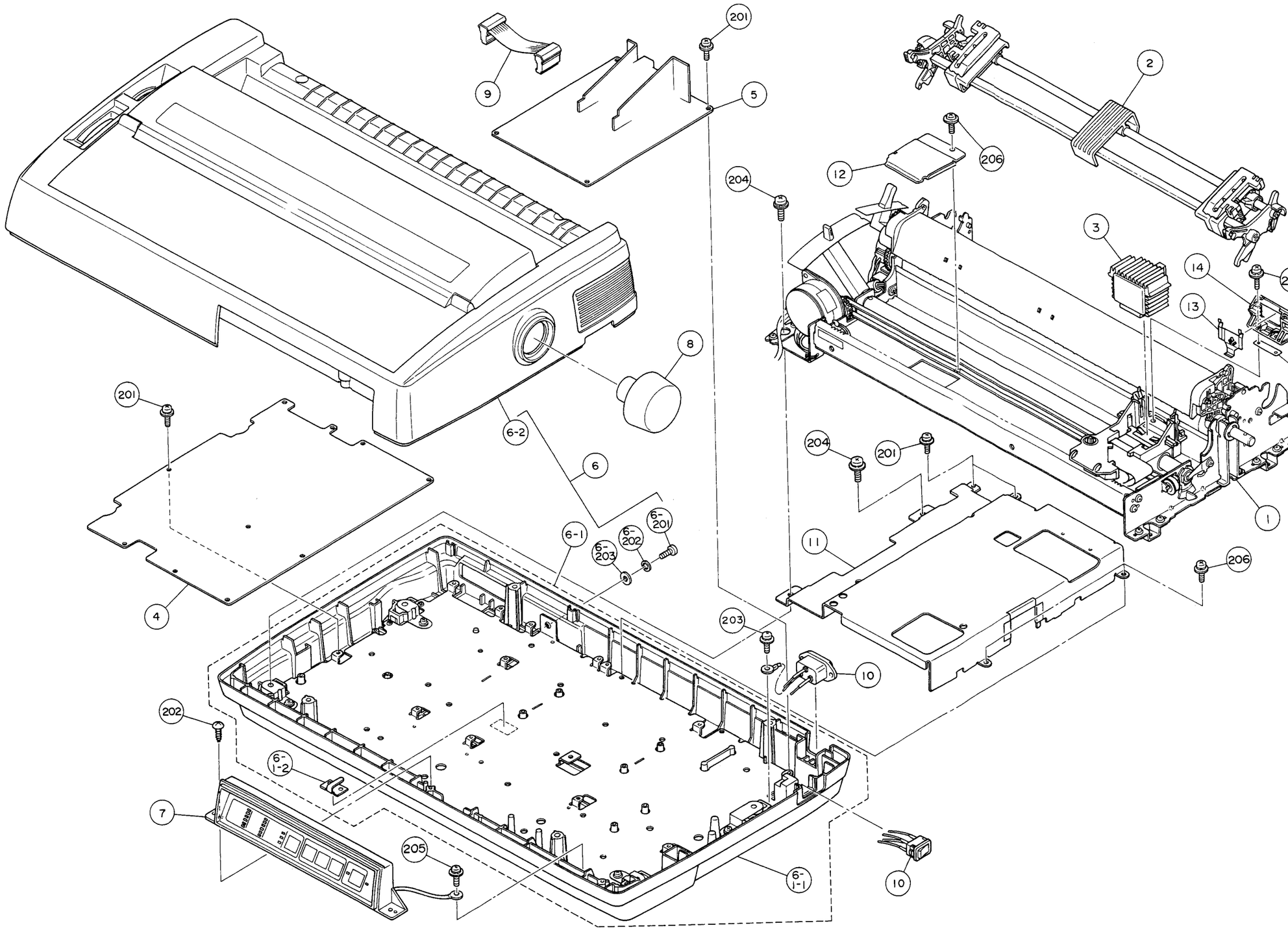


Figure 7-7 PSC' Printer Unit (W)

PSC' Mechanism Unit (N) (136-219414-401-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Carrier Assembly (N) (See Figure 7-10 for breakdown)	136-850742-101-A	1
2	Frame Assembly (N) (See Figure 7-11 for breakdown)	136-220398-101-A*	1
3	Platen Assembly (N)	136-850752-101-A	1
3-1	Platen (N)	136-850683-101-A*	1
3-2	Platen Bushing	136-850684-A*	2
3-3	Platen Thrust Shim	136-768495-0*	1
3-201	Spring Pin, 3x14	803-010022-314-0*	2
4	Release Plate Assembly (N)	136-850753-001-A	1
4-1	Release Plate (N)	136-850738-A*	1
4-2	Pressure Spring	136-850700-002-A*	3
4-201	Screw, STCS-CPIMSx3x6x15BF	808-802445-306-A*	3
5	SP Motor Assembly (See Figure 7-13 for breakdown)	136-850775-001-A	1
6	Driven Pulley Assembly	136-850754-A	1
6-1	Driven Pulley	136-850729-A*	1
6-2	Pulley Flange	136-850730-A*	1
6-3	Pulley Shim	136-850731-A*	2
6-4	Driven Shaft	136-850732-A*	1
6-5	Driven Bushing	808-868150-001-A*	1
6-6	Bearing Spacer	136-850801-A*	1
6-201	E Ring E-28	803-010030-028-0*	2
7	LF Motor Assembly	136-850776-001-A	1
7-1	LF Motor	808-805289-001-A*	1
7-2	LF Motor Bracket	136-850722-A*	1
7-201	Screw, SL-CPIMSx3x6x15BF	805-310003-006-0*	2
7-202	Washer, SIWAx3x15BF	805-600003-0*	2
8	LF Gear	136-850763-A	1
9	Feed Roller Unit (N) (See Figure 7-14 for breakdown)	136-220400-401-A	1
10	Sensor Assembly	136-876383-A	1
11	Guide Shaft (N)	136-850695-001-A	1
12	Eccentric Bushing	136-850694-A	1
13	Gap Adjust Lever	136-850693-A	1
14	Lever Sheet (G)	136-850696-A	1
15	Platen Gear	136-850688-A	1
16	Paper Selection Lever	136-850706-A	1
17	Lever Sheet (P)	136-850709-A	1
18	Release Arm	136-850707-A	1
19	Slide Gear	136-850724-A	1
20	Slide Gear Spring	136-850768-A	1
21	Release Arm Spring	136-850708-001-A	1
22	Shaft FG	136-850782-A	1
23	Shaft Slider	136-850666-A	1
24	Wiring Label	133-380012-A	1
25	Slide Gear Washer	136-858863-A*	1
26	LF Wave Washer	136-858864-002-A*	1
27	Stick Finger	808-814762-002-A*	2
28	Guide Shaft Spring	136-876378-A*	1
201	Screw, STCS-CPIMSx4x8x15BF	808-802445-408-A*	4
202	Screw, SL-CPIMSx3x12x15BF	805-310003-012-0*	2
203	Screw, PL-CPIMSx4x10x15BF	805-300004-010-0*	1
204	U Ring UTW-4	808-802464-040-0	1
205	E Ring E-80	803-010030-080-0	1
206	Vinyl Tie	808-835225-001-A*	4
207	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	1

* Not available as a spare part.

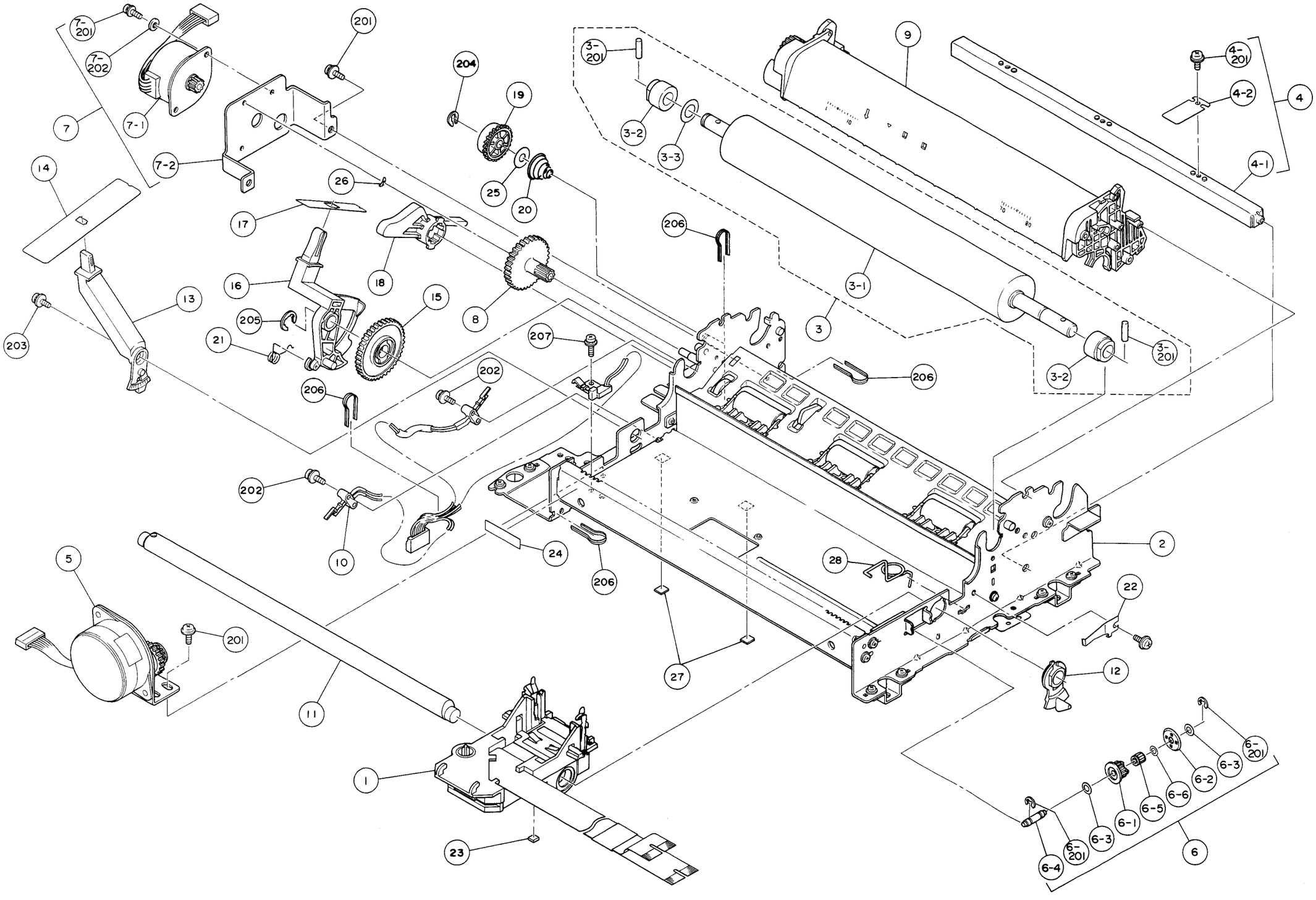


Figure 7-8 PSC' Mechanism Unit (N)

PSC' Mechanism Unit (W) (136-219414-901-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Carrier Assembly (W) (See Figure 7-10 for breakdown)	136-850742-901-A	1
2	Frame Assembly (W) (See Figure 7-12 for breakdown)	136-220398-901-A*	1
3	Platen Assembly (W)	136-850752-501-A	1
3-1	Platen (W)	136-850683-501-A*	1
3-2	Platen Bushing	136-850684-A*	2
3-3	Platen Thrust Shim	136-768495-0*	1
3-201	Spring Pin, 3x14	803-010022-314-0*	2
3-202	E-ring E-80	803-010030-080-0	1
4	Release Plate Assembly (W)	136-850753-501-A	1
4-1	Release Plate (W)	136-850739-A*	1
4-2	Pressure Spring	136-850700-002-A*	3
4-201	Screw, STCS-CPIMSx3x6x15BF	808-802445-306-A*	3
5	SP Motor Assembly (See Figure 7-13 for breakdown)	136-850775-001-A	1
6	Driven Pulley Assembly	136-850754-A	1
6-1	Driven Pulley	136-850729-A*	1
6-2	Pulley Flange	136-850730-A*	1
6-3	Pulley Shim	136-850731-A*	2
6-4	Driven Shaft	136-850732-A*	1
6-5	Driven Bushing	808-868150-001-A*	1
6-6	Bearing Spacer	136-850801-A*	1
6-201	E Ring E-28	803-010030-028-0*	2
7	LF Motor Assembly	136-850776-001-A	1
7-1	LF Motor	808-805289-001-A*	1
7-2	LF Motor Bracket	136-850722-A*	1
7-201	Screw, SL-CPIMSx3x6x15BF	805-310003-006-0*	2
7-202	Washer, SIWAx3x15BF	805-600003-0*	2
8	LF Gear	136-850763-A	1
9	Feed Roller Unit (W) (See Figure 7-15 for breakdown)	136-220400-901-A	1
10	Sensor Assembly	136-876383-A	1
11	Guide Shaft (W)	136-850695-501-A	1
12	Eccentric Bushing	136-850694-A	1
13	Gap Adjust Lever	136-850693-A	1
14	Lever Sheet (G)	136-850696-A	1
15	Platen Gear	136-850688-A	1
16	Paper Selection Lever	136-850706-A	1
17	Lever Sheet (P)	136-850709-A	1
18	Release Arm	136-850707-A	1
19	Slide Gear	136-850724-A	1
20	Slide Gear Spring	136-850768-A	1
21	Release Arm Spring	136-850708-001-A	1
22	Shaft FG	136-850782-A	1
23	Shaft Slider	136-850666-A	1
24	Wiring Label	133-380012-A	1
25	Slide Gear Washer	136-858863-A*	1
26	LF Wave Washer	136-858864-002-A*	1
27	Stick Finger	808-814762-002-A*	2
28	Balancer Weight Assembly	136-876385-A	1
201	Screw, STCS-CPIMSx4x8x15BF	808-802445-408-A*	4
202	Screw, SL-CPIMSx3x12x15BF	805-310003-012-0*	2
203	U Ring UTW-4	808-802464-040-0	1
204	E Ring E-80	803-010030-080-0	1
205	Vinyl Tie	808-835225-001-A*	4
206	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	1

* Not available as a spare part.

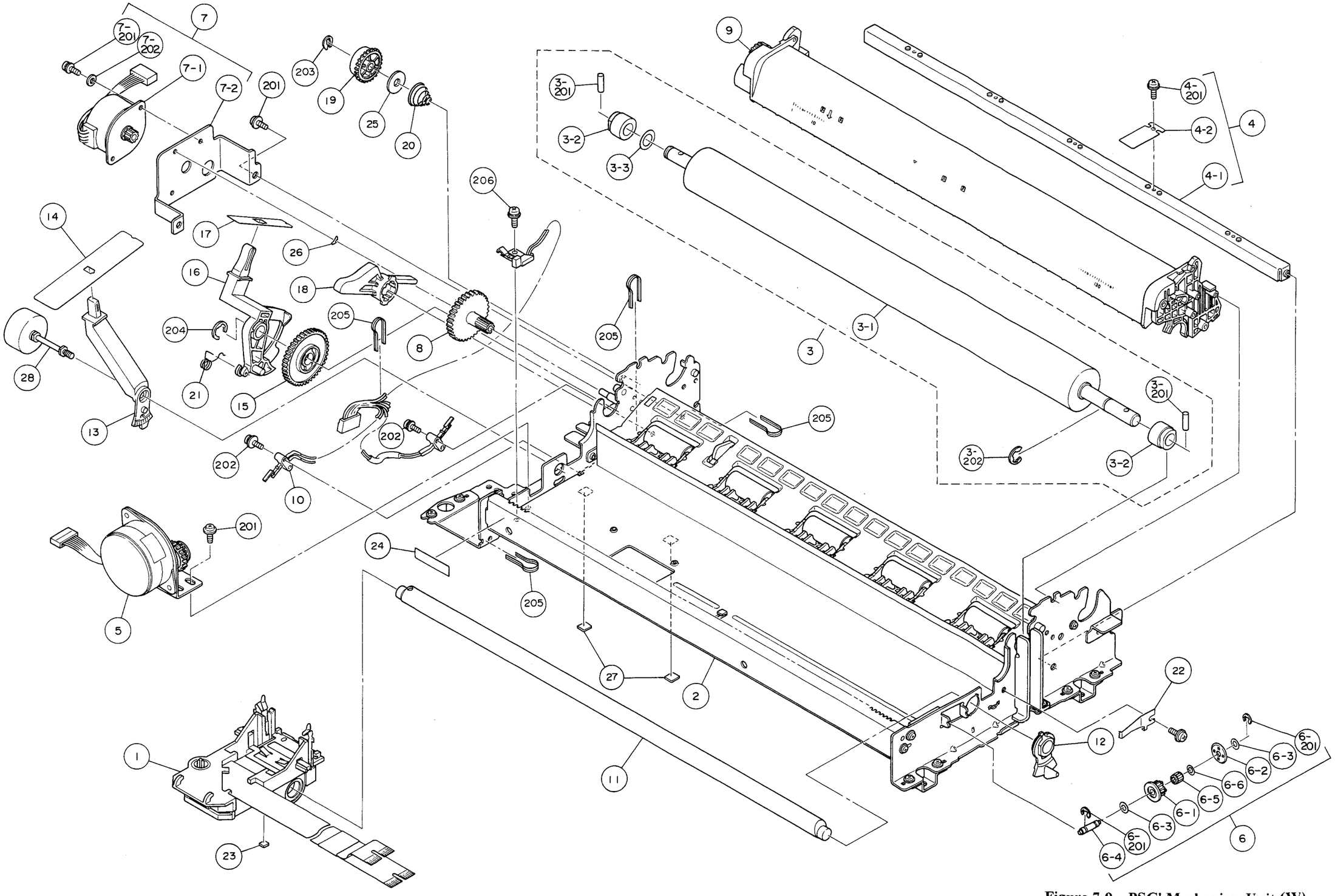


Figure 7-9 PSC' Mechanism Unit (W)

Carrier Assembly (136-850742-GRP*-A)

ITEM	PART NAME	PART NUMBER	Q'TY 101	Q'TY 901
1	Carrier Frame Subassembly	136-850743-001-A**	1	1
2	Torque Gear	136-850658-A**	1	1
3	Idle Gear	136-850659-A**	1	1
4	Planetary Gear	136-850660-B**	1	1
5	Planetary Arm	136-850661-B**	1	1
6	Friction Disk	136-850663-A**	1	1
7	Head Clamp (L)	136-850664-002-B**	1	1
8	Head Clamp (R)	136-850664-001-B**	1	1
9	CR FG Plate	136-850667-A	1	1
10	Carrier Cable (J) Assembly	808-847277-001-A	1	–
10	Carrier Cable (J) Assembly	808-847277-501-A	–	1
11	Micropitch Timing Belt	808-805290-001-A	1	–
11	Micropitch Timing Belt	808-805290-501-A	–	1
12	CR FG Plate (A)	136-850791-A	1	1
13	Planetary Gear Stopper	136-850799-A**	1	1
14	Idle Gear (INS)	136-858869-001-A	1	1
201	Screw, PCBTSx3x10x15BF	808-802045-310-0**	1	1

* GRP 101 : Carrier Assembly (N) for Model P22Q
GRP 901 : Carrier Assembly (W) for Model P32Q

** Not available as a spare part.

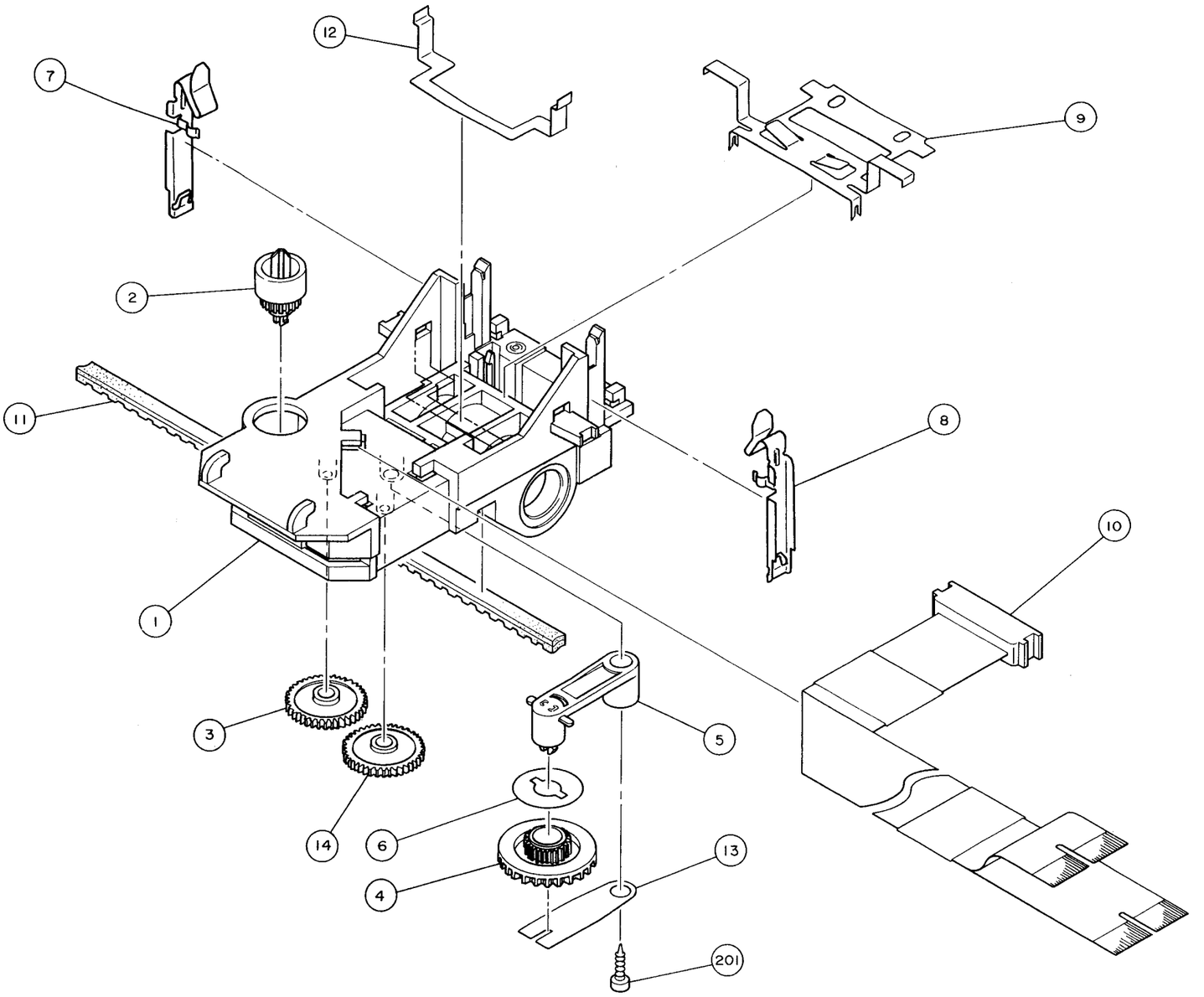


Figure 7-10 Carrier Assembly

Frame Assembly (N) (136-220398-101-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Right Side Frame Subassembly	136-850746-A	1
2	Left Side Frame Subassembly	136-850747-A	1
3	Front Stay (N)	136-850703-001-A	1
4	Main Stay (N)	136-850701-001-B	1
5	Pressure Sheet (N)	136-876363-A	1
6	Frame Foot Bracket	136-850697-A	4
7	Frame Chassis (R)	136-850698-002-A	1
8	Paper Guide Assembly (N)	136-850749-001-A	1
8-1	Paper Guide (N)	136-850710-001-A	1
8-2	MDL Sensor Assembly	136-850750-A	1
8-3	MDL Sensor Bracket	136-850773-A	1
8-4	MDL Lever	136-850772-A	1
8-5	MDL Lever Bushing	136-850771-A	2
8-6	Front Pressure Roller	136-850713-A	3
8-7	Rear Pressure Roller (N)	136-850714-001-A	1
8-8	Roller Holder	136-850715-A	3
8-201	Screw, SL-CPIMSx3x8x15BF	805-310003-008-0*	1
8-202	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	1
9	Paper Guide Support (R)	136-850802-001-A	1
10	Paper Guide Support (L)	136-850802-002-A	1
11	Frame Damper	136-850800-A*	1
12	Resistor Sheet	136-850804-A*	1
13	Protector	136-850806-A*	1
201	Screw, STCS-CPIMSx4x6x15BF	808-802445-406-A*	17
202	Screw, STCS-CPIMSx3x6x15BF	808-802445-306-A*	3
203	Screw, CS-CPIMSx3x7x15BF	808-830044-307-0*	3

* Not available as a spare part.

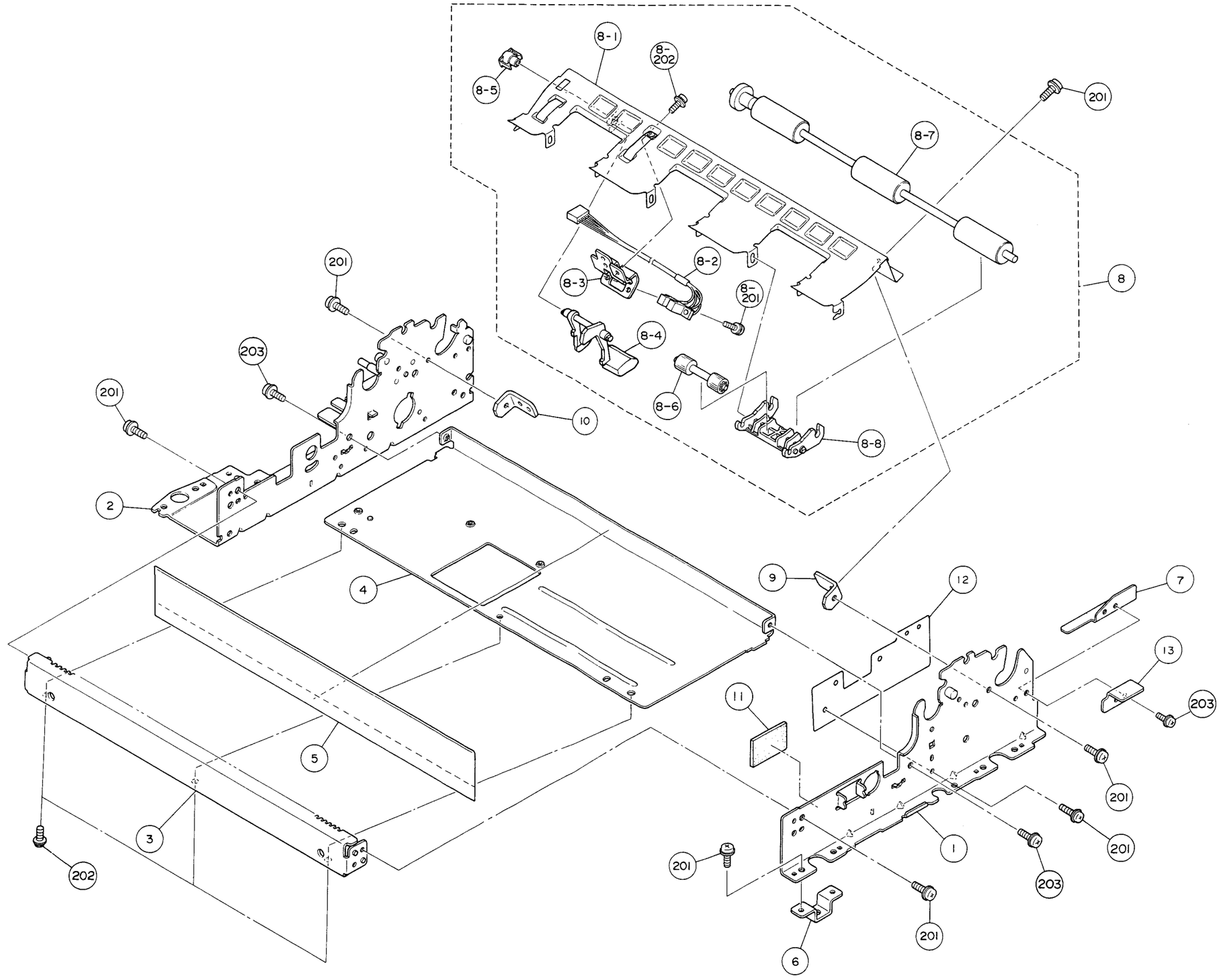


Figure 7-11 Frame Assembly (N)

Frame Assembly (W) (136-220398-901-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Right Side Frame Subassembly	136-850746-A	1
2	Left Side Frame Subassembly	136-850747-A	1
3	Front Stay (W)	136-850703-501-A	1
4	Main Stay (W)	136-850701-501-B	1
5	Pressure Sheet (W)	136-850702-501-A	1
6	Frame Foot Bracket	136-850697-A	4
7	Frame Chassis (R)	136-850698-002-A	1
8	Paper Guide Assembly (W)	136-850749-501-A	1
8-1	Paper Guide (W)	136-850710-501-A	1
8-2	MDL Sensor Assembly	136-850750-A	1
8-3	MDL Sensor Bracket	136-850773-A	1
8-4	MDL Lever	136-850772-A	1
8-5	MDL Lever Bushing	136-850771-A	2
8-6	Front Pressure Roller	136-850713-A	5
8-7	Rear Pressure Roller (W)	136-850714-501-A	1
8-8	Roller Holder	136-850715-A	5
8-201	Screw, SL-CPIMSx3x8x15BF	805-310003-008-0*	1
8-202	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	1
9	Right Side Support	136-850797-A	1
10	Paper Guide Support (R)	136-850802-001-A	1
11	Paper Guide Support (L)	136-850802-002-A	1
12	Frame Damper	136-850800-A*	1
13	Resistor Sheet	136-850804-A*	1
14	Protector	136-850806-A*	1
201	Screw, STCS-CPIMSx4x6x15BF	808-802445-406-A*	18
202	Screw, STCS-CPIMSx3x6x15BF	808-802445-306-A*	3
203	Screw, STCS-CPIMSx4x10x15BF	808-802445-410-A*	1
204	Screw, CS-CPIMSx3x7x15BF	808-830044-307-0	3

* Not available as a spare part.

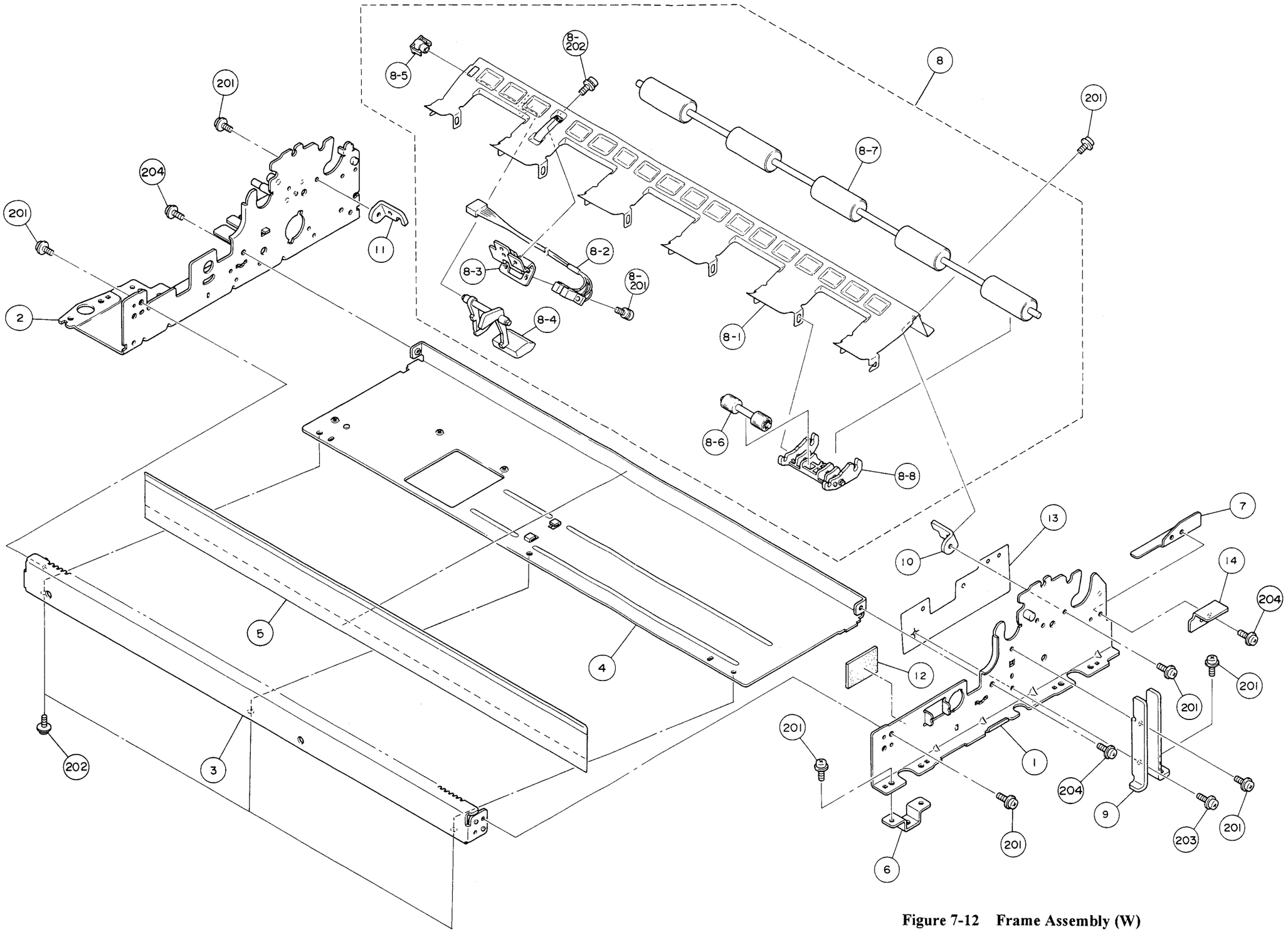


Figure 7-12 Frame Assembly (W)

SP Motor Assembly (136-850775-001-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	SP Motor	808-805288-001-A*	1
2	SP Motor Bracket Assembly	136-850756-A*	1
2-1	SP Motor Bracket Subassembly	136-850757-B*	1
2-2	Gear Pulley	136-850718-A*	1
2-3	Pulley Flange	136-850730-A*	1
2-4	Pulley Shim	136-850731-A*	1
2-5	Driven Bushing	808-868150-001-A*	1
2-6	Bearing Spacer	136-850801-A*	1
2-201	E Ring E-28	803-010030-028-0*	1
201	Screw, SL-CPIMSx3x6x15BF	805-310003-006-0*	2

* Not available as a spare part.

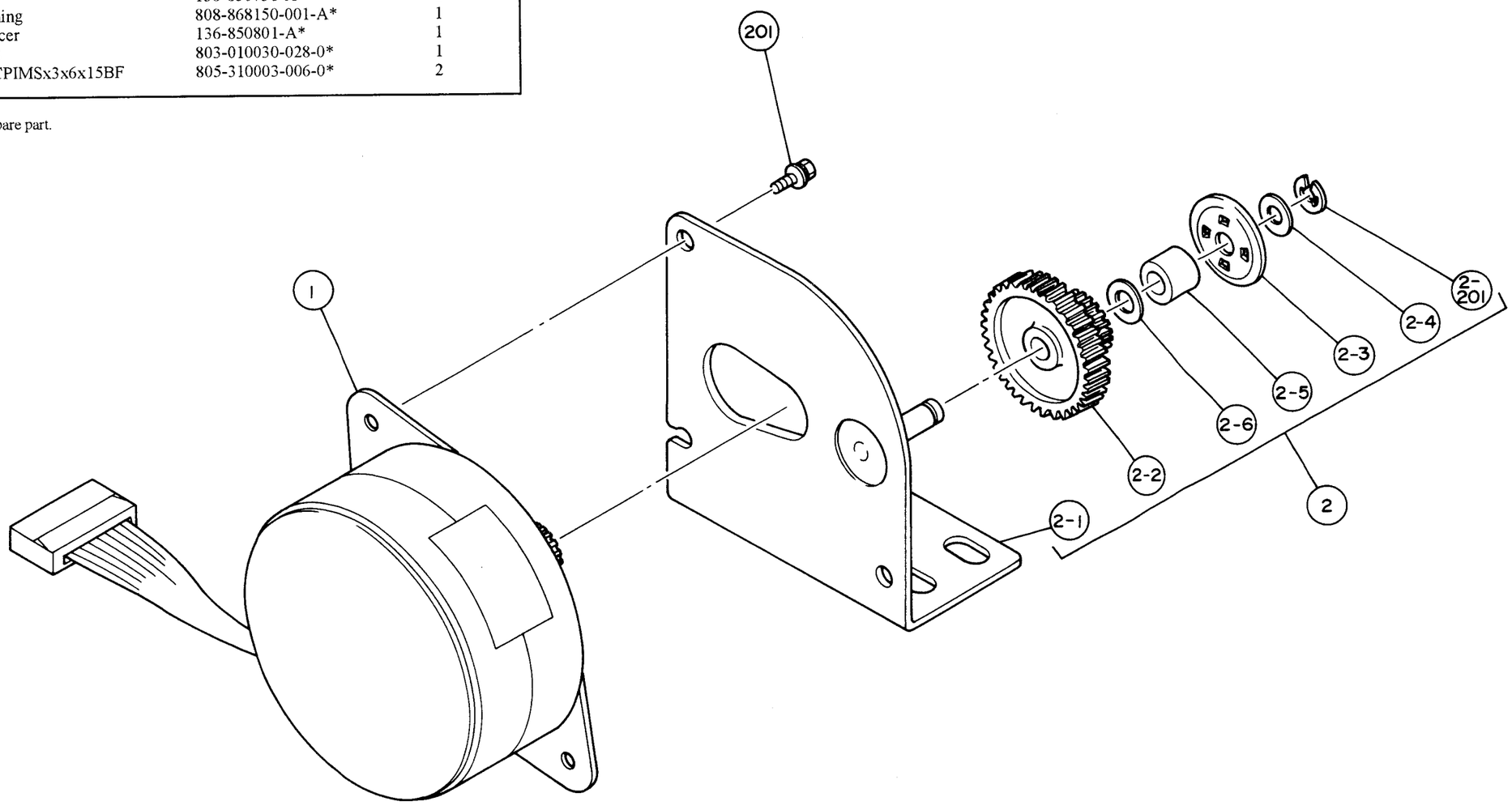


Figure 7-13 SP Motor Assembly

Feed Roller Unit (N) (136-220400-401-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Roller Base (N)	136-850678-001-A*	1
2	Roller Cover (N)	136-850679-001-A	1
3	Feed Roller (N)	136-850744-003-A*	1
4	Roller Drive Gear	136-850681-A	1
5	Roller Idle Gear	136-850682-A	1
6	Tractor Drive Gear	136-850765-A	1
7	Eject Sheet	136-850781-A	1
8	Actuator (N)	136-850712-001-A*	1
9	Collar (A)	136-850770-A*	2
10	Support Bracket	136-876366-A	2
11	Feed Roller Stay (N)	136-850766-001-A*	1
12	Spring Spacer	136-850789-A*	1
13	Lock Piece	136-850796-A	1
201	E Ring E-37	803-010030-037-0	2
202	SE Ring	803-050002-030-0	1
203	Screw, SL-CPIMSx3x6x3GF	805-310103-006-0*	2
204	Screw, PCBTSx3x6x15BF	808-802045-306-0*	2

* Not available as a spare part.

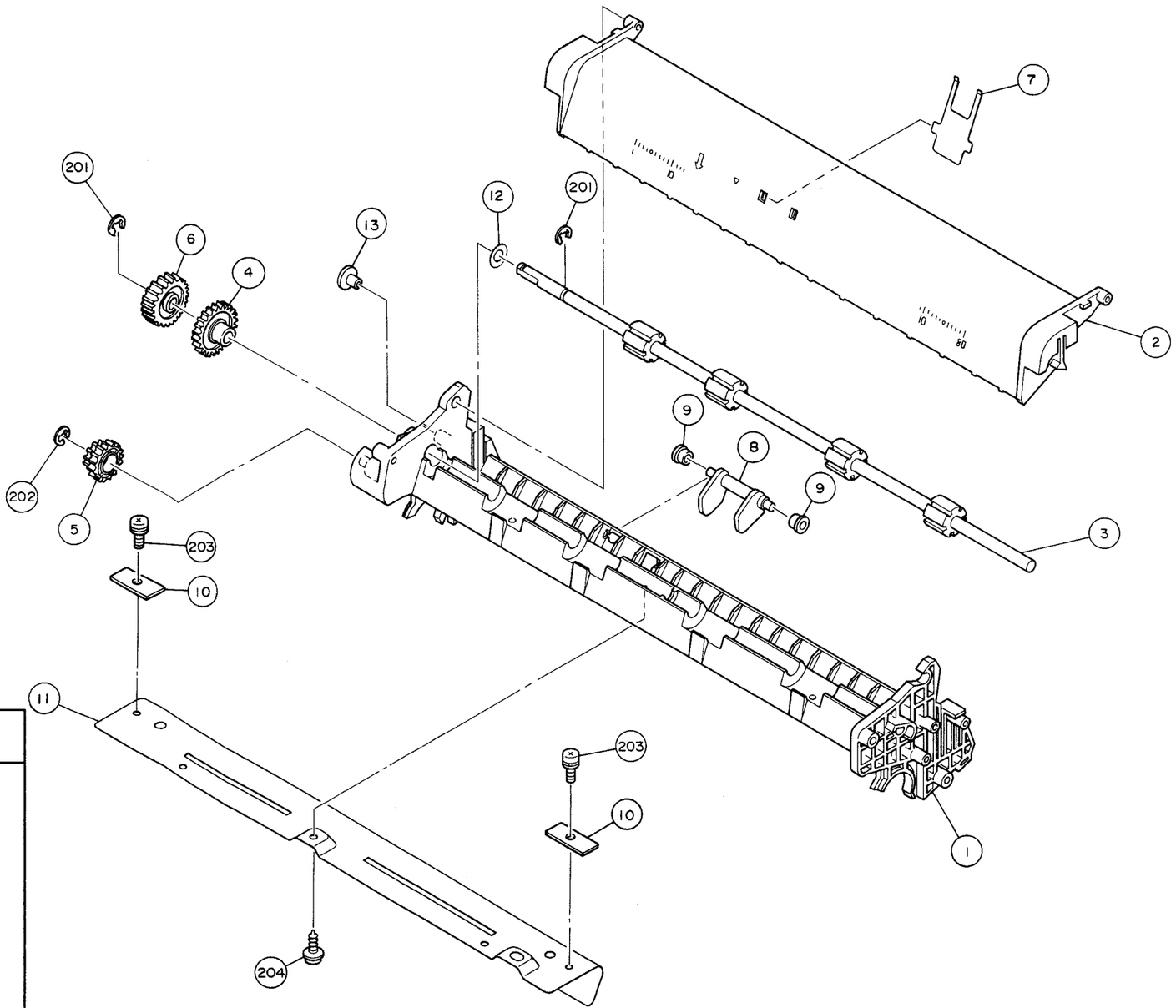
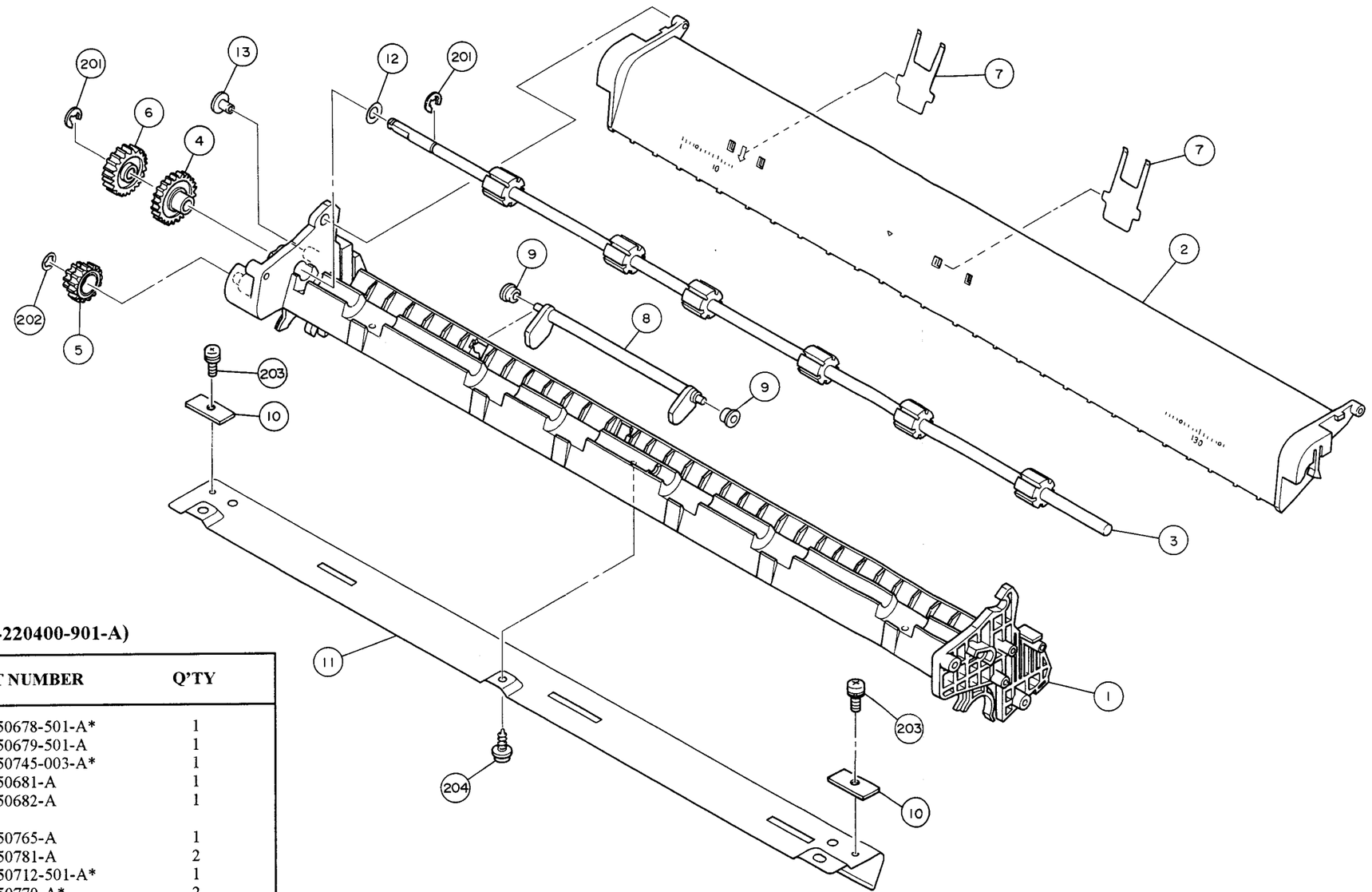


Figure 7-14 Feed Roller Unit (N)



Feed Roller Unit (W) (136-220400-901-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Roller Base (W)	136-850678-501-A*	1
2	Roller Cover (W)	136-850679-501-A	1
3	Feed Roller (W)	136-850745-003-A*	1
4	Roller Drive Gear	136-850681-A	1
5	Roller Idle Gear	136-850682-A	1
6	Tractor Drive Gear	136-850765-A	1
7	Eject Sheet	136-850781-A	2
8	Actuator (W)	136-850712-501-A*	1
9	Collar (A)	136-850770-A*	2
10	Support Bracket	136-876366-A	2
11	Feed Roller Stay (W)	136-850766-501-A*	1
12	Spring Spacer	136-850789-A*	1
13	Lock Piece	136-850796-A	1
201	E Ring E-37	803-010030-037-0	2
202	SE Ring	803-050002-030-0	1
203	Screw, SL-CPIMSx3x6x3GF	805-310103-006-0*	2
204	Screw, PCBTSx3x6x15BF	808-802045-306-0*	3

* Not available as a spare part.

Figure 7-15 Feed Roller Unit (W)

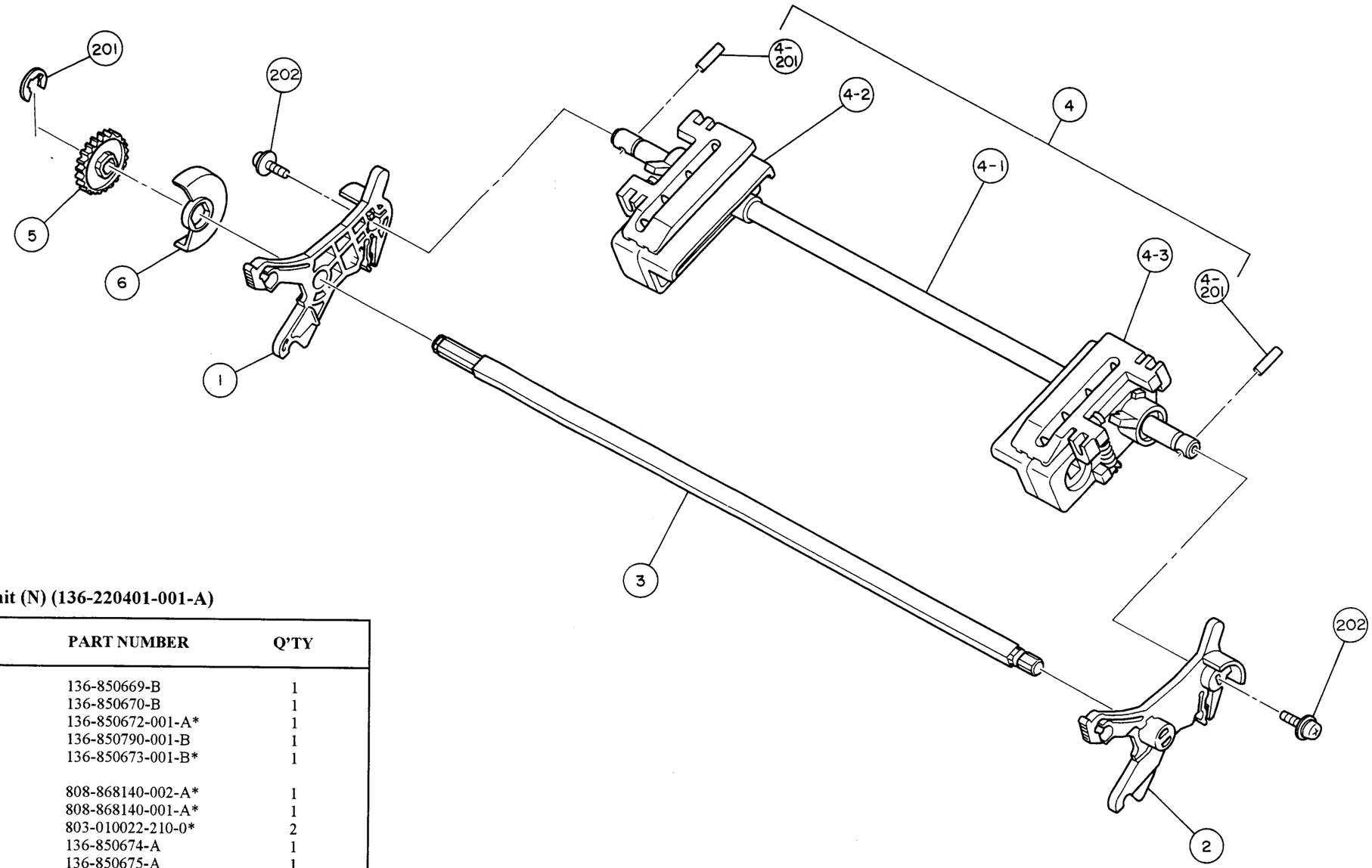


Figure 7-16 Tractor Unit (N)

Tractor Unit (N) (136-220401-001-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Tractor Side Frame (L)	136-850669-B	1
2	Tractor Side Frame (R)	136-850670-B	1
3	Drive Shaft (N)	136-850672-001-A*	1
4	Tractor Subassembly	136-850790-001-B	1
4-1	Support Shaft (N)	136-850673-001-B*	1
4-2	Tractor Assembly L	808-868140-002-A*	1
4-3	Tractor Assembly R	808-868140-001-A*	1
4-201	Sprig Pin 2x10	803-010022-210-0*	2
5	Tractor Gear	136-850674-A	1
6	Gear Cover	136-850675-A	1
201	E Ring E-50	803-010030-050-0	1
202	Screw, PL-CPIMSx3x8x3GF	805-300103-008-A	2

* Not available as a spare part.

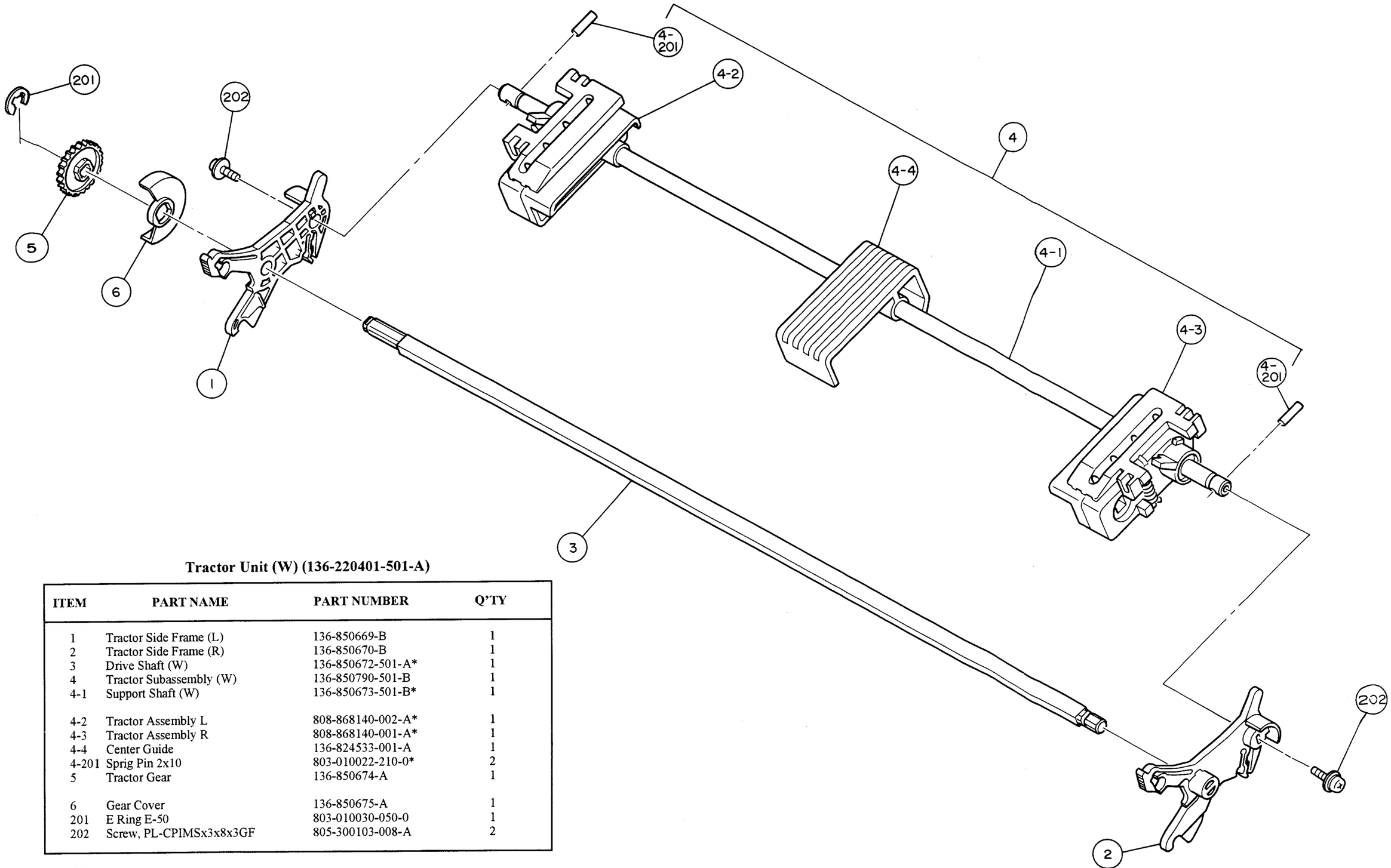


Figure 7-17 Tractor Unit (W)

Tractor Unit (W) (136-220401-501-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Tractor Side Frame (L)	136-850669-B	1
2	Tractor Side Frame (R)	136-850670-B	1
3	Drive Shaft (W)	136-850672-501-A*	1
4	Tractor Subassembly (W)	136-850790-501-B	1
4-1	Support Shaft (W)	136-850673-501-B*	1
4-2	Tractor Assembly L	808-868140-002-A*	1
4-3	Tractor Assembly R	808-868140-001-A*	1
4-4	Center Guide	136-824533-001-A	1
4-201	Sprig Pin 2x10	803-010022-210-0*	2
5	Tractor Gear	136-850674-A	1
6	Gear Cover	136-850675-A	1
201	E Ring E-50	803-010030-050-0	1
202	Screw, PL-CPIMSx3x8x3GF	805-300103-008-A	2

* Not available as a spare part.

Mother Board, G8FVLE (136-436693-005-C) - 1/3

COMPONENT DESIGNATION	DESCRIPTION	PART NUMBER	Q'TY
3A, 6A	7405	808-905005-001-A*	2
6B	NMC9346	802-140501-001-A	1
4C, 5C	µPD41464-12	802-140053-012-A	2
5A	µPD78213GQ	802-147112-002-A	1
3B	147156-002	802-147156-002-A	1
2A	µPC177C/µPC339C	808-913406-001-A	1
4D	G8FVLE PROM Rework	136-229754-001-B	1
RM1	RRS06BL222J(L)	802-190033-603-A*	1
RM2	RRS09BL472J(L)	802-190033-908-A*	1
R49-R52, R106, R110, R119-R126, R129, R140	RD14-B2E101J-CT	802-310059-049-0*	26
R112	RD14-B2E181J-CT	802-310059-055-0*	1
R66, R111, R128	RD14-B2E333J-CT	802-310059-061-0*	3
R25-R28, R98-R101	RD14-B2E561J-CT	802-310059-067-0*	8
R53-R55, R80	RD14-B2E681J-CT	802-310059-069-0*	4
R104	RD14-B2E821J-CT	802-310059-071-0*	1
R21-R24, R29-R32, R64, R75	RD14-B2E102J-CT	802-310059-073-0*	10
R127	RD14-B2E221J-CT	802-310059-057-0*	1
R81-R97, R102-R103, R109, R113-R116	RD14-B2E122J-CT	802-310059-075-0*	24
R146, R151-R160	RD14-B2E222J-CT	802-310059-081-0*	11
R147	RD14-B2E332J-CT	802-310059-085-0*	1
R65, R144, R149,R150	RD14-B2E272J-CT	802-310059-083-0*	4
R59, R71-R74, R76-R79, R105, R141, R142, R148,	RD14-B2E472J-CT	802-310059-089-0*	13
R45-R48, R61, R67-R70, R117	RD14-B2E103J-CT	802-310059-097-0*	10
R43, R44, R56, R57, R62, R63	RD14-B2E683J-CT	802-310059-117-0*	6
R33-R36	RD14-B2E682J-CT	802-310059-093-0*	4
R37-R40	RD14-B2E204J-CT	802-310059-128-0*	4
R107	RD14-B2E105J-CT	802-310059-145-0*	1
R1-R4, R17-R20	T-REC50VJ332	808-930200-282-A*	8
R13-R16	T-REC50VJ472	808-930200-286-A*	4
R143	RN14-K2E202F-CT	802-310061-080-0*	1
R145	RN14-K2E153F-CT	802-310061-101-0*	1
R11, R12	ERG1SJ510U	802-310051-125-A*	2
R9, R10	ERG1SJ300U	802-310051-126-A*	2
R5-R8	RSM3FB1ΩJUZ	802-310051-622-A*	4
XT1	CSA20.00MX040	808-970112-025-A*	1
D1-D10	RD24FB	802-230014-047-0*	10

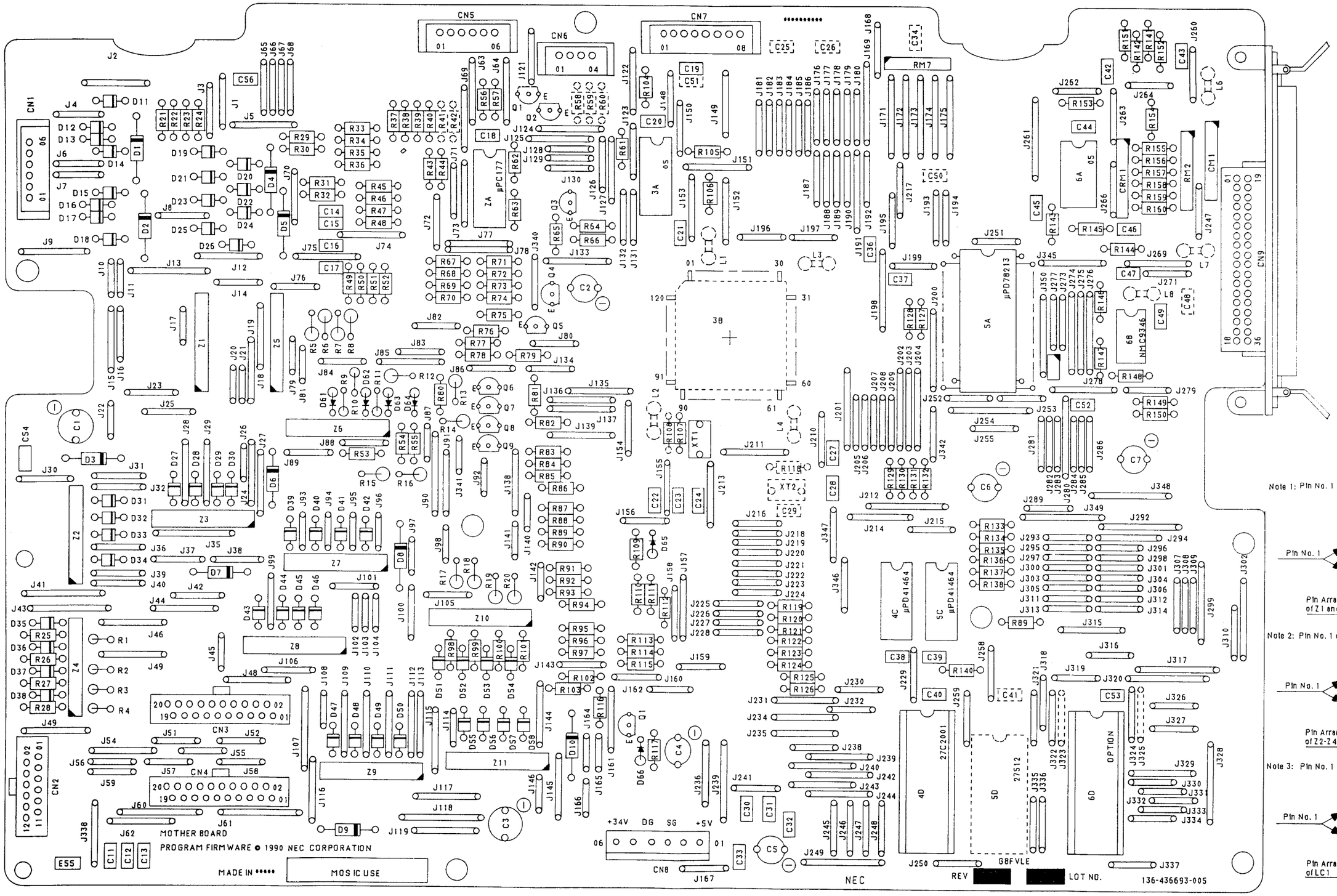
Mother Board, G8FVLE (136-436693-005-C) - 2/3

COMPONENT DESIGNATION	DESCRIPTION	PART NUMBER	Q'TY
D65	RD3.6EB-TB	802-230020-016-0*	1
D61-D64, D66	1S954-T4	802-210018-001-0*	5
D11, D14, D15, D18, D20, D22, D24, D26, D27-D34, D39-D50, D55-D58	T-GDM200V1A	802-220078-001-A*	32
D12, D13, D16, D17, D19, D21, D23, D25, D35-D38, D51-D54	T-GDHMA200V1A	802-220088-001-0*	16
Q2, Q5, Q10	MPSA56	802-250162-002-0*	3
Q3, Q4, Q6-Q9	MPSA06	802-250162-001-0*	6
Z4, Z6 Z10	STA402A	808-922008-009-A	3
Z2, Z3, Z7-Z9, Z11	STA473A	802-260161-001-0	6
Z1, Z5	SLA4301	802-180327-002-0	2
CRM1	CR Module 2001	808-934903-001-A*	1
CM1	CM-8-102	808-935569-044-A*	1
C18-C22, C27, C33, C35-C40, C44-C47, C49, C52-C56	T-MC02F1H104Z	808-935500-002-A*	23
C23, C24	T-MC02CH1H070D	808-935501-036-A*	2
C2, C4-C7	T-CEK16V22µF	808-935300-111-A*	5
C1, C3	T-CEK50V22µF	808-935300-101-A*	2
C11-C13, C30-C32, C42, C43	T-CK45B102K50V	808-935504-006-A*	8
C14-C17	T-MC02CH1H223K	808-935502-007-A*	4
J1, J3, J4, J6-J8, J10, J11, J14, 17, J20-J23, J25, J26, J28-J32, J36, J37, J39, J40, J42, J45, J51, J52, J55-J59, J65-J68, J71, J72, J76, J79, J80-J84, J86-J89, J92-J99, J101-J106, J108, J114, J116, J117, J119, J121, J126, J128-J131, J132, J134, J140-J143, J146, J148, J150, J154-J156, J160, J162, J164-J168, J187-J190, J192-J197, J199, J210, J215-J217, J277, J218-J288, J241, J245-J248, J250-J253, J258-J260, J262-J264, J267, J271, J273, J279, J281-J286, J289, J293, J295-J298, J300, J301, J303-J309, J311-J314, J316, J318, J319, J321, J322, J324, J326, J327, J330-J334, J340, J341, J346, J347	Jumper Wire (4P)	136-789375-004-A*	183

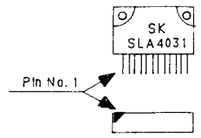
Mother Board, G8FVLE (136-436693-005-C) - 3/3

COMPONENT DESIGNATION	DESCRIPTION	PART NUMBER	Q'TY
J9, J12, J13, J16, J18, J19, J38, J44, J48, J49, J61, J63, J69, J70, J73, J74, J77, J78, J85, J91, J100, J109-J113, J115, J118, J122, J123, J124, J125, J127, J133, J144, J149, J151-J153, J158, J159, J161, J176-J186, J198, J205-J209, J211, J213, J214, J229, J230, J232, J236, J238, J242-J244, J255, J265, J269, J278, J274-J276, J280, J294, J310, J315, J329, J335-J338, J342, J345	Jumper Wire (6P)	136-789675-006-A*	88
J2, J5, J15, J24, J27, J35, J41, J43, J46, J47, J54, J60, J62, J64, J75, J90, J107, J135-139, J145, J157, J169, J171-J175, J191, J200-J204, J212, J231, J234, J235, J237, J239, J240, J249, J254, J261, J266, J292, J299, J302, J317, J320, J328, J348-350	Jumper Wire (8P)	136-789375-008*	56
LC1	TH43253MA	802-840083-022-A*	1
CN6	HR04S Natural	808-955247-541-A*	1
CN1	HR06S Black	808-955247-563-A*	1
CN5	HR06S Natural	808-955247-561-A*	1
CN7	HR08S Natural	808-955247-581-A*	1
CN2	FH11 12S 1.27DSA	808-955311-012-A*	1
CN3, CN4	FH11 20S 1.27DSA	808-955311-020-A*	2
CN8	VR-06	808-955247-806-A*	1
CN9	Centronics Connctor Assembly	136-843453-001-A*	1
(4D), (6D)	32P SN IC Socket	802-730031-132-0*	2
(1)	G8FVL PCB	136-456693-E	1

* Not available as a spare part.

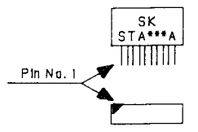


Note 1: Pin No. 1 of Z1 and Z5.



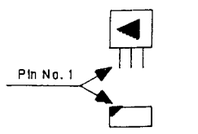
Pin Arrangement of Z1 and Z5

Note 2: Pin No. 1 of Z2 to Z4, Z8 to Z10.



Pin Arrangement of Z2-Z4, Z8-Z10

Note 3: Pin No. 1 of LC1.



Pin Arrangement of LC1

Figure 7-18 Mother Board, G8FVLE (Component Side)

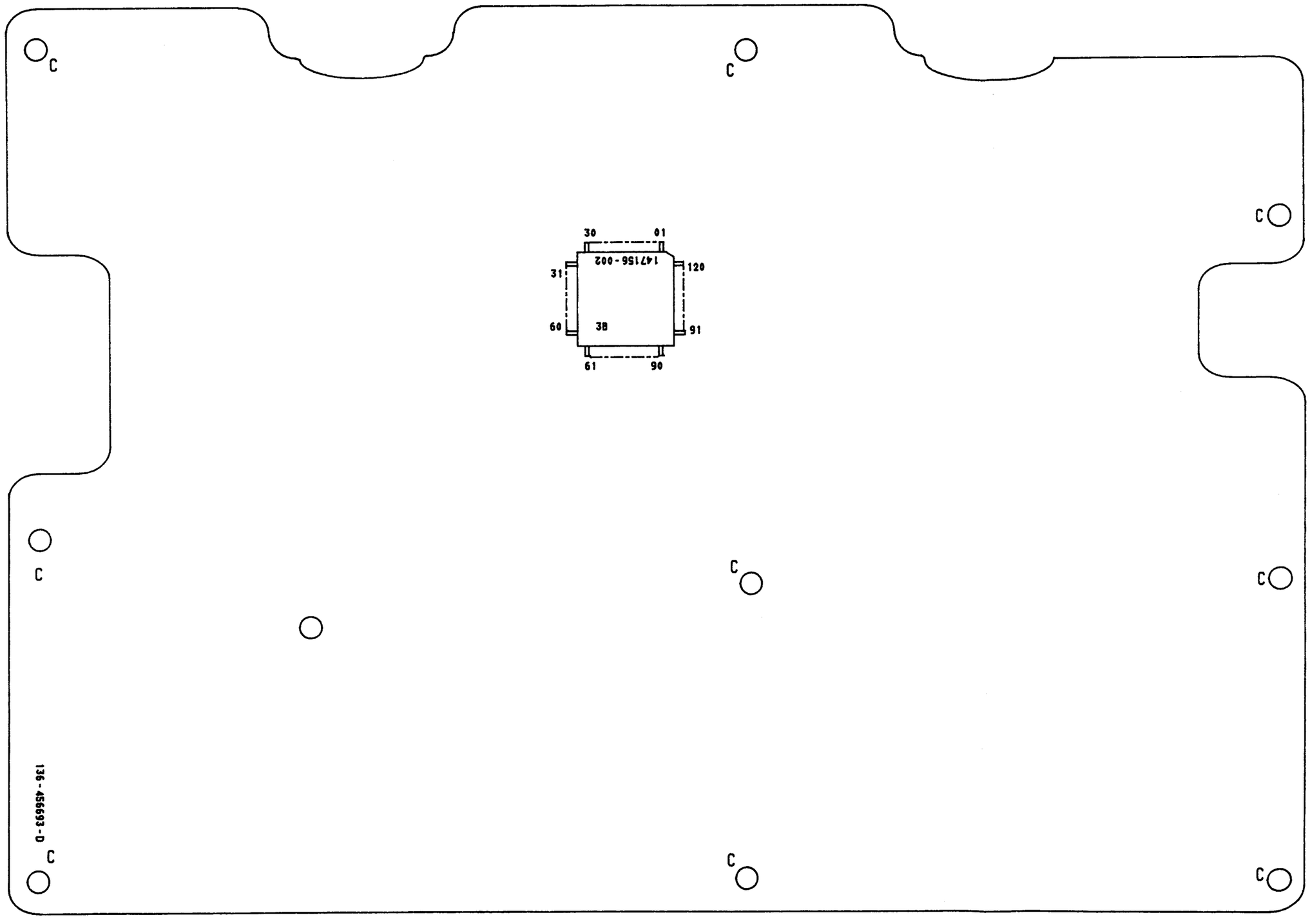


Figure 7-18 Mother Board, G8FVLE (Solder Side)

Power Board, PSC POWER (C) - GRP 313 - 1/2

COMPONENT DESIGNATION	DESCRIPTION			PART NUMBER	Q'TY
Z1	IC	HA17431PA		808-891472-001-A	1
Z2	IC	SI-3052V		808-891472-002-A	1
PC1	PC			808-891472-003-A	1
Q1, 2	TRN	50 V	100 mA	808-891472-004-A	2
Q3	TRN	800 V	7 A	808-891472-005-A	1
Q4	TRP	60 V	1 A	808-891472-006-A	1
Q5	TRN	40 V	2 A	808-891472-007-A	1
CR1	SCR	200 V	300 mA	808-891472-008-A	1
D1	DG	50 V	400 mA	808-891472-101-A	1
D2, 4, 5	DG	200 V	1 A	808-891472-102-A	3
D3	DG	1000 V	1 A	808-891472-103-A	1
D6	DG	600 V	1 A	808-891472-104-A	1
D7	DZ	8.2 V	500 mW	808-891472-105-A	1
D8	DZ	24 V	500 mW	808-891472-106-A	1
D9	DZ	10 V	500 mW	808-891472-107-A	1
RC1	DB	600 V	6 A	808-891472-108-A	1
RC2	DFCK	200 V	10 A	808-891472-109-A	1
RC3	DSCK	45 V	5 A	808-891472-110-A	1
L1, 2	LL	1.7 A	7 mH	808-891472-201-A	2
T1	EXT43740-058			808-891472-205-A	1
SQ1	VR	470 V		808-891472-207-A	1
CH1	CH	16 Ω		808-891472-208-A	1
C5	CE	400 V	220 µF	808-891472-301-A	1
C6	CE	50 V	100 µF	808-891472-302-A	1
C14	CE	50 V	47 µF	808-891472-303-A	1
C24	CE	10 V	100 µF	808-891472-304-A	1
C25	CE	50 V	10000 µF	808-891472-304-A	1
C26	CE	10 V	4700 µF	808-891472-305-A	1
C1	CF	250 Vac	0.22 µF	808-891472-401-A	1
C4	CF	250 Vac	0.1 µF	808-891472-402-A	1
C8, 13, 22, 23	CF	50 V	0.1 µF	808-891472-403-A	4
C9	CF	630 V	0.01 µF	808-891472-404-A	1
C12, 15	CF	50 V	0.068 µF	808-891472-405-A	2
C2, 3, 10, 11	CC	250 Vac	2200 pF	808-891472-501-A	4
R1, 2, 3, 4, 5	RM	5 W	1.2 Ω	808-891472-601-A	5
R6, 7, 8	RM	5 W	3.9 kΩ	808-891472-602-A	3
R10	RM	1/2 W	2.4 kΩ	808-891472-603-A	1
R11	RM	1/2 W	2.7 kΩ	808-891472-604-A	1
R12, 13	RM	3 W	1.2 Ω	808-891472-605-A	2
R14, 15	RM	3 W	56 Ω	808-891472-606-A	2
R18	RM	1/2 W	100 Ω	808-891472-607-A	1
R21	RM	1 W	30 kΩ	808-891472-607-A	1
R24, 25	RM	3 W	30 kΩ	808-891472-608-A	2
R44	RM	1 W	1 kΩ	808-891472-609-A	1
R45, 46	RM	3 W	1.2 kΩ	808-891472-610-A	2

Power Board, PSC POWER (C) - GRP 313 - 2/2

COMPONENT DESIGNATION	DESCRIPTION			PART NUMBER	Q'TY
R48	RM	3 W	100 Ω	808-891472-611-A	1
R41	RM	1/4 W	15 kΩ	808-891472-701-A	1
R42	RM	1/4 W	390 Ω	808-891472-702-A	1
R43	RM	1/4 W	1.2 kΩ	808-891472-703-A	1
R9, 40	RC	1/4 W	10 kΩ	808-891472-801-A	2
R17	RC	1/4 W	100 Ω	808-891472-802-A	1
R19, 20	RC	1/4 W	1 kΩ	808-891472-803-A	2
R22	RC	1/4 W	27 Ω	808-891472-804-A	1
R23	RC	1/4 W	680 Ω	808-891472-805-A	1
R26, 27	RC	1/4 W	330 kΩ	808-891472-806-A	2
R28	RC	1/4 W	10 Ω	808-891472-807-A	1
R47	RC	1/4 W	680 kΩ	808-891472-808-A	1
CN1	B2P3-VH			808-891472-901-A	1
CN2	B6P-VR			808-891472-902-A	1
F1	FF	250 V	2 A	808-891472-905-A	1

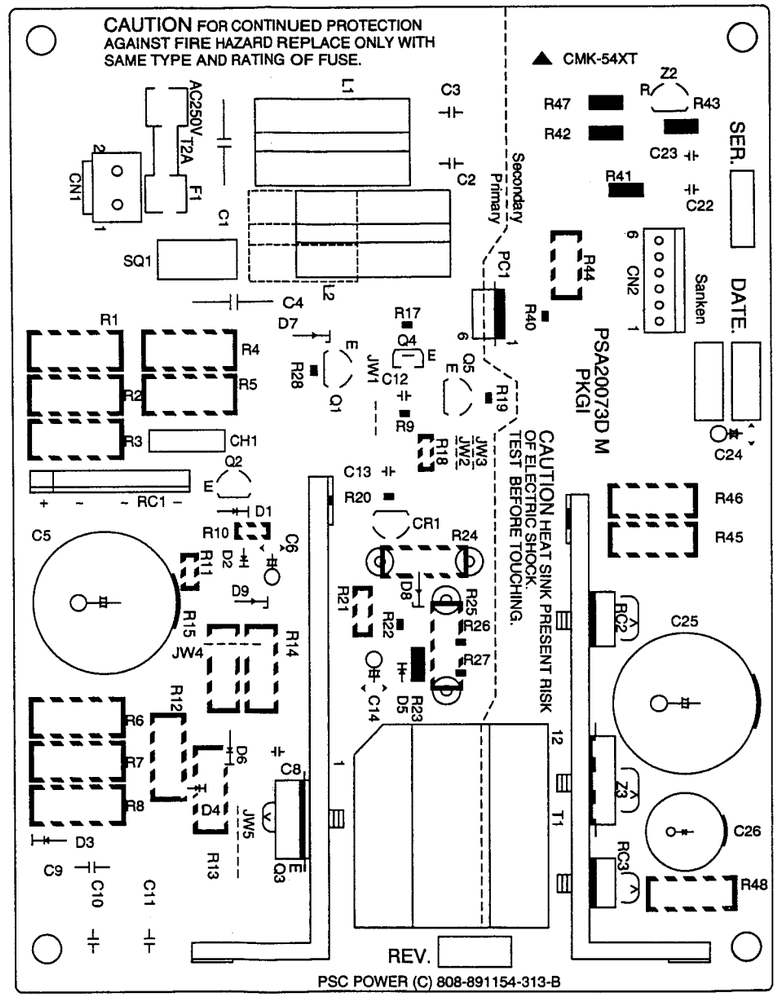


Figure 7-19 Power Board, PSC POWER (C) - GRP 313

Base Cover Assembly (S) (136-851384-301-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Base Cover (S)	136-850325-301-A*	1
2	Base Chassis (S)	136-850335-001-A*	1
3	Frame Foot	136-835336-001-A*	4
4	FG Plate	136-843459-001-A	3
5	FG Plate (2)	136-851404-001-A*	1
201	Screw, STCS-CPIMSx3x6x15BF	808-802445-306-A*	4
202	Screw, SL-CPIMSx4x12x15BF	805-310004-012-0*	8
203	Screw, PCBTSx4x8x15BF	808-802045-408-0*	6

* Not available as a spare part.

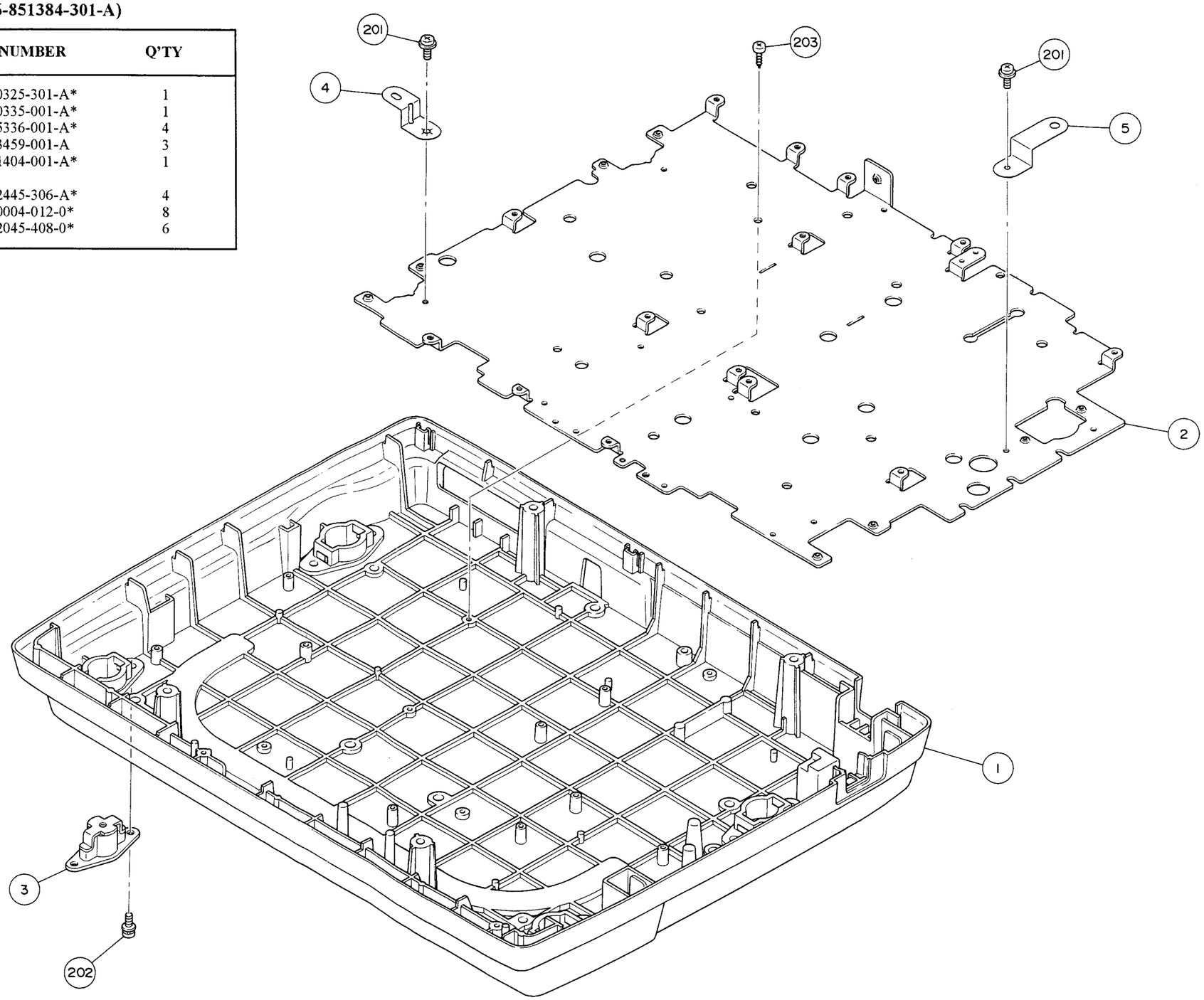


Figure 7-20 Base Cover Assembly (S)

Base Cover Assembly (L) (136-851384-801-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Base Cover (L)	136-850326-801-A*	1
2	Base Chassis (L)	136-850335-501-A*	1
3	Frame Foot	136-835336-001-A*	4
4	FG Plate	136-843459-001-A	3
5	FG Plate (2)	136-851404-001-A*	1
201	Screw, STCS-CPIMSx3x6x15BF	808-802445-306-A*	4
202	Screw, SL-CPIMSx4x12x15BF	805-310004-012-0*	8
203	Screw, PCBTSx4x8x15BF	808-802045-408-0*	9

* Not available as a spare part.

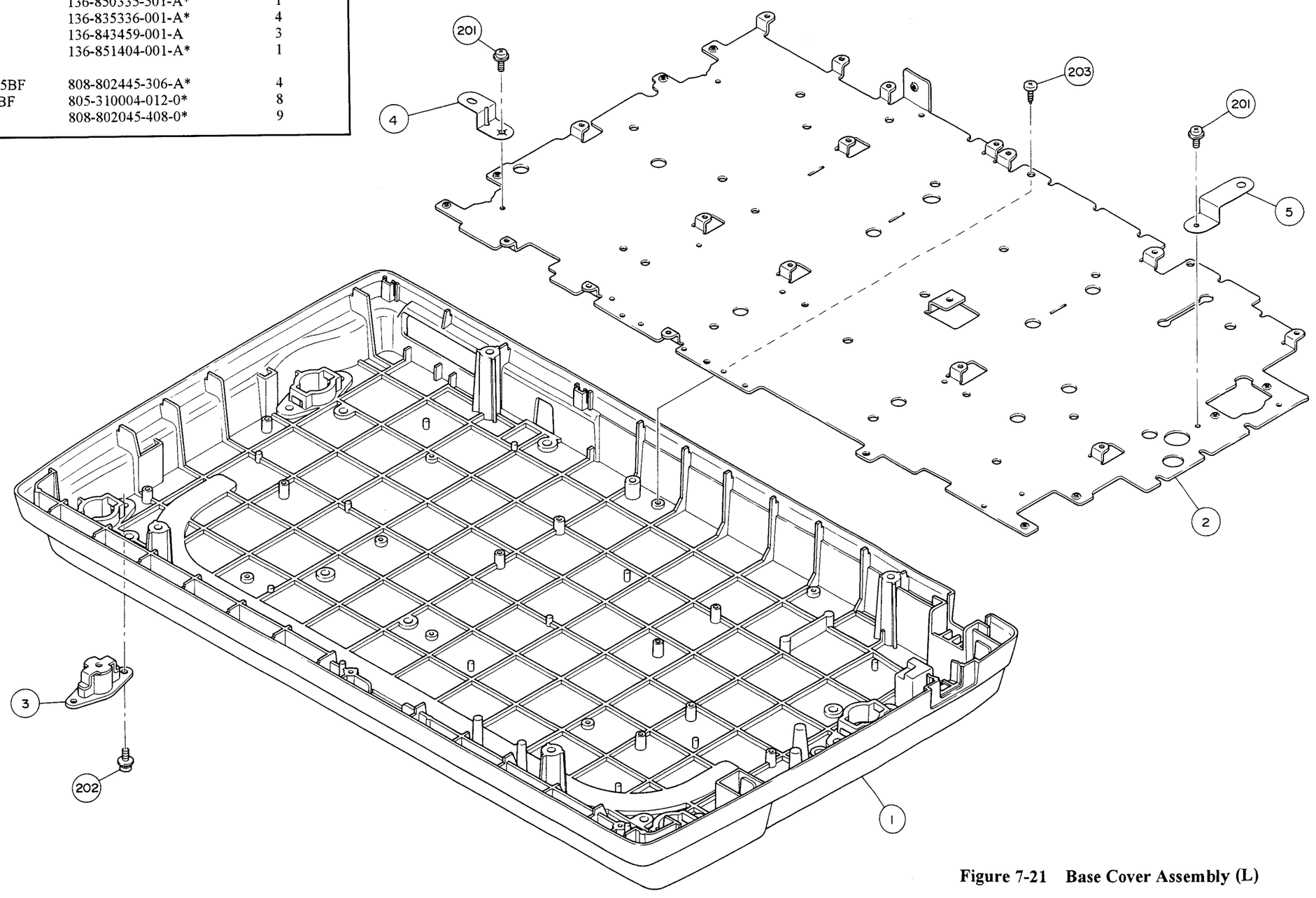


Figure 7-21 Base Cover Assembly (L)

Upper Cover Assembly (S) (136-863449-302-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Middle Cover Assembly (S)	136-850342-301-A	1
1-1	Middle Cover Subassembly (S)	136-851386-301-A*	1
1-201	Special Screw	808-814333-A	4
2	Top Cover Assembly (S)	136-850346-302-A	1
2-1	Top Cover Subassembly (S)	136-851388-301-A*	1
2-2	Canopy Assembly (S)	136-864107-301-A	1

* Not available as a spare part.

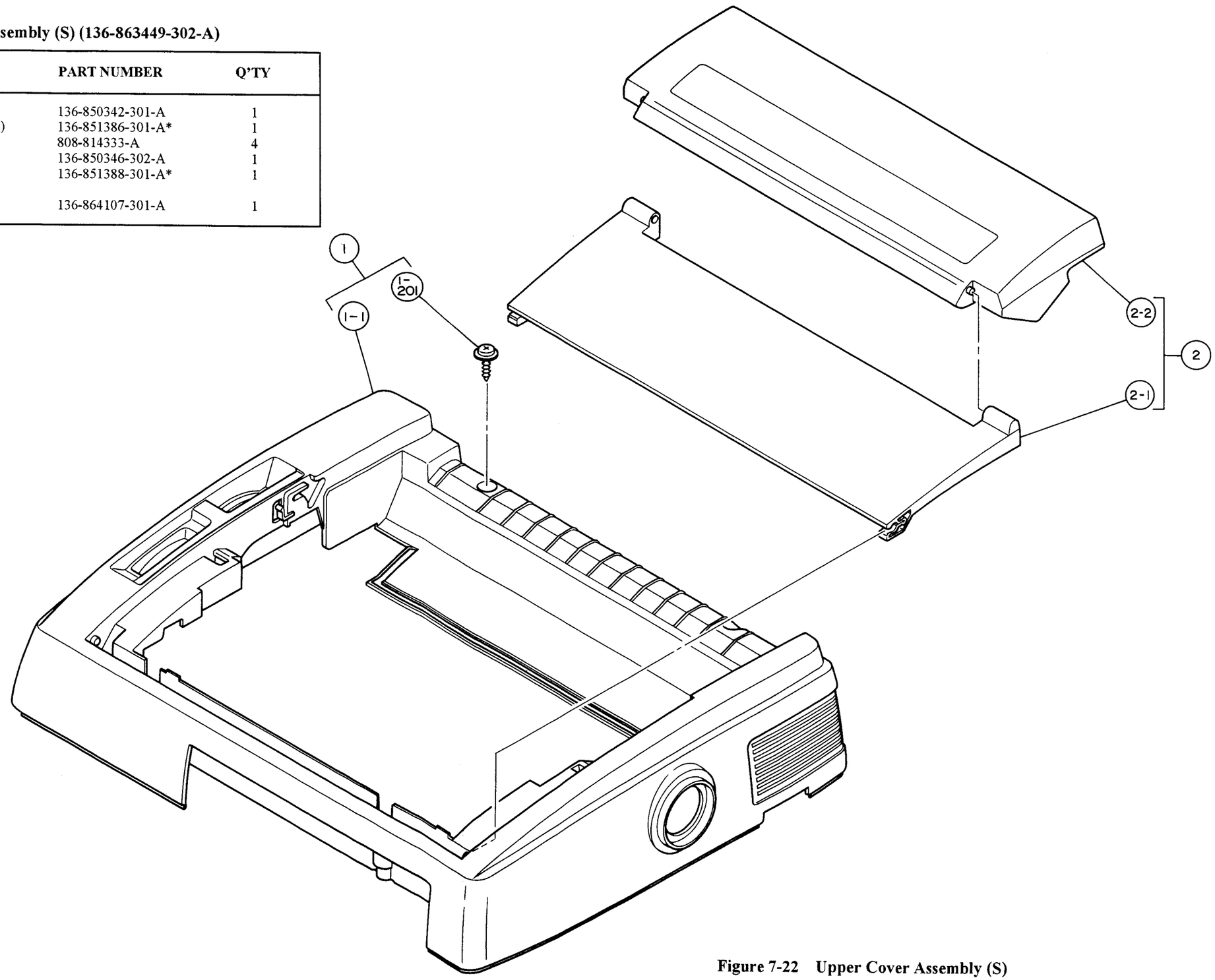


Figure 7-22 Upper Cover Assembly (S)

Upper Cover Assembly (L) (136-863449-802-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Middle Cover Assembly (L)	136-850342-801-A	1
1-1	Middle Cover Subassembly (L)	136-851386-801-A*	1
1-201	Special Screw	808-814333-A	4
2	Top Cover Assembly (L)	136-850346-802-A	1
2-1	Top Cover Subassembly (L)	136-851388-801-A*	1
2-2	Canopy Assembly (L)	136-864107-801-A	1

* Not available as a spare part.

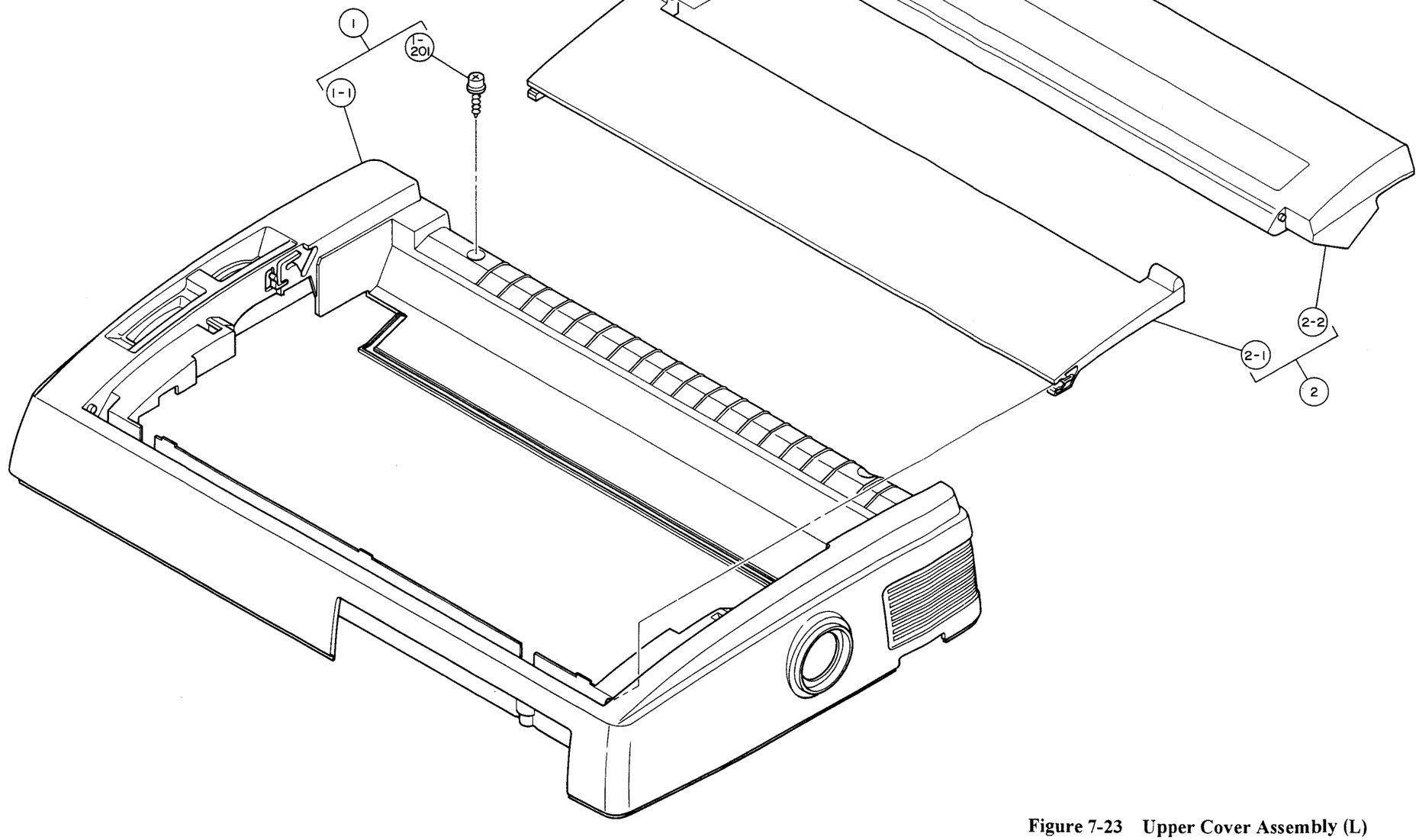


Figure 7-23 Upper Cover Assembly (L)

PSC Operator Panel (808-869974-101-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	OP Panel	36-850323-001-A*	1
2	OP Sheet	136-850324-101-A	1
3	OPP PCB Assembly	808-869974-603-A*	1
4	Screw, #2CPTSx2.6x6x15BF	805-060026-006-0*	1
5	Core Assembly	136-789708-001-A*	1

* Not available as a spare part.

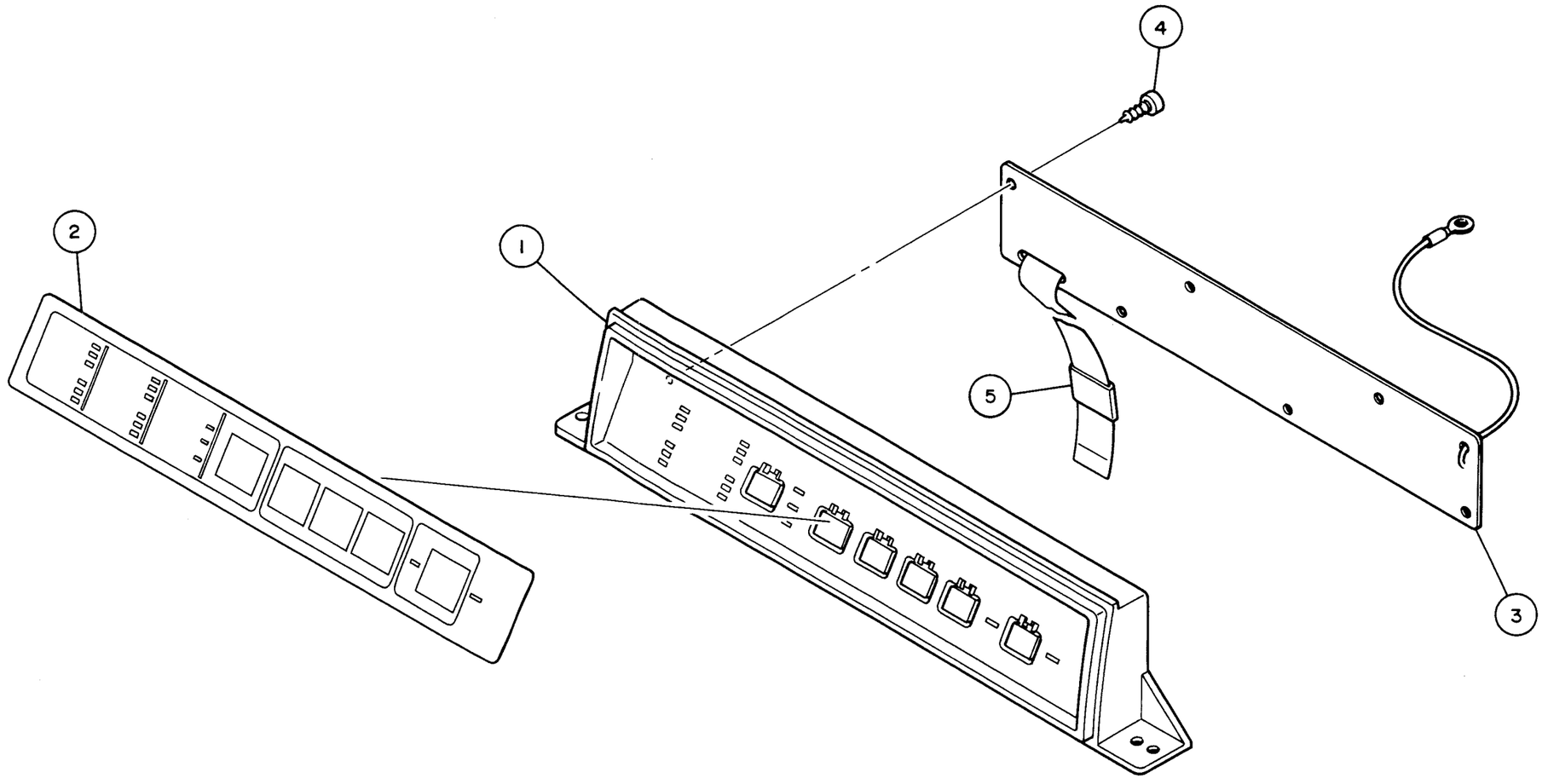


Figure 7-24 PSC Operator Panel

RS-232C Kit (808-217741-001-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Serial I/F Case (U)	136-846899-001-A	1
2	Serial I/F Case (L)	136-846900-001-A	1
3	Set Screw	136-846884-001-A	2
4	G8ESW PCB Assembly (See Figure 7-17 for breakdown)	136-436275-A	1
201	Screw PCBTSx3x8x3GF	808-802172-308-0	4
202	Screw PCBTSx3x12x3GF	808-802172-312-0	2

* Not available as a spare part.

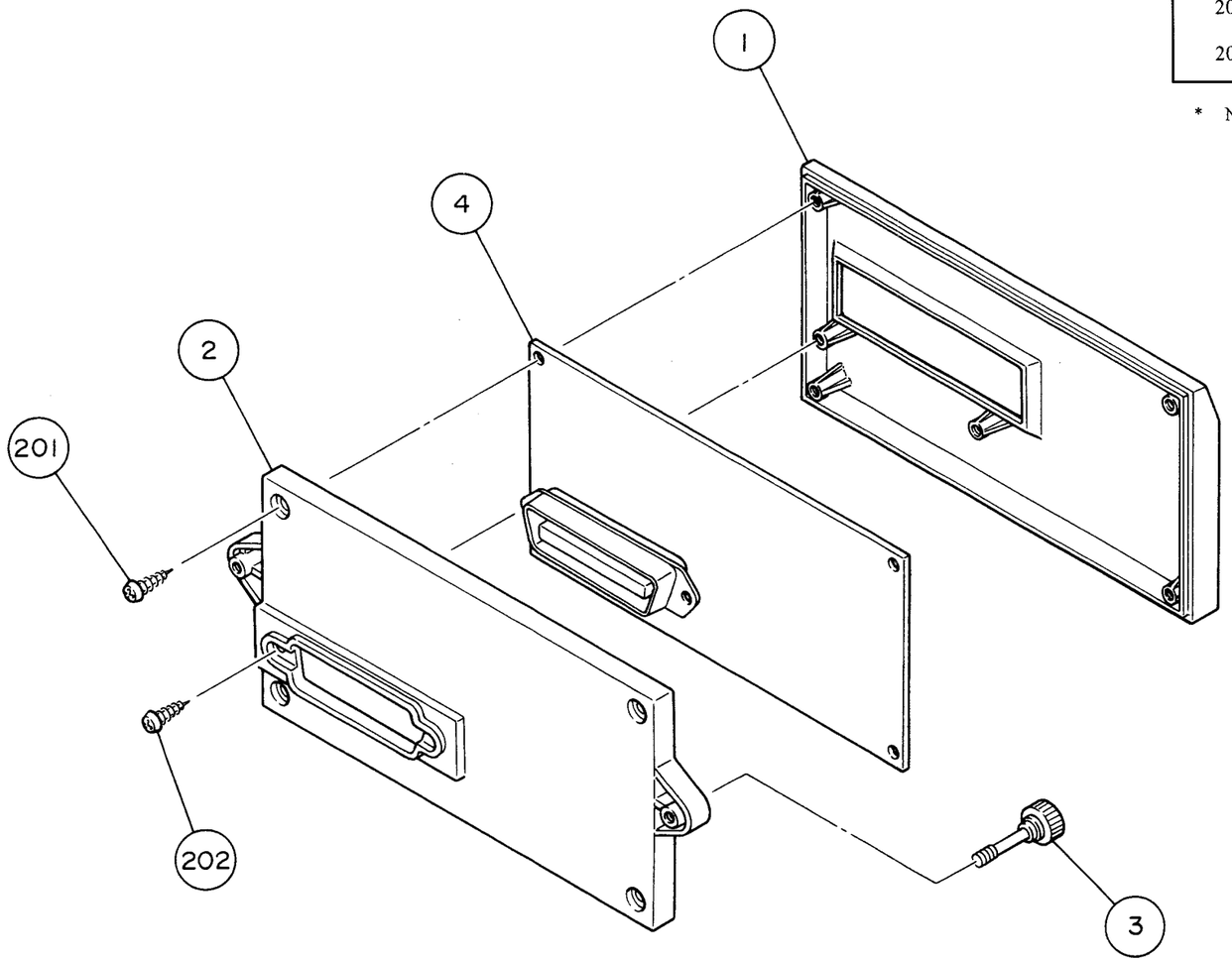


Figure 7-25 RS-232C Kit

RS-232C Interface Board, G8ESW (136-101509-002-A)

COMPONENT DESIGNATION	DESCRIPTION	PART NUMBER	Q'TY
Z1	D78C11G-251	802-140628-521-A	1
Z2	74LS00	808-907000-001-A	1
Z3	74LS373	808-907373-001-A	1
Z4	464 (150)	808-919407-150-A	1
Z5	D4712A	802-180453-002-A	1
D1	1S953	808-923009-531-A	1
R1	T-RF07Q203G	808-930300-017-A*	1
R2	T-RF07Q105G	808-930300-074-A*	1
RM1	RRS09BL472J (L)	802-190033-908-A*	1
L1-L9	ZBF503D-00	802-840043-002-A*	9
C6, C7	FMC02CH1H300K	808-935501-006-A*	2
C5, C8, C9, C11, C12, C14, C15	FMC02F1H104Z	808-935500-002-A*	6
C1-C4, C10, C13	T-CE16V22µF	808-935300-084-A*	6
CM1, CM2	IHC4-331KA	808-935569-001-A*	2
CM3	IHC4-222KA	808-935569-002-A*	1
XT1	CSA 7.37 MT	808-970112-011-A*	1
CN55	57-10360-13	802-710037-423-A*	1
CN56	Serial Connector Assembly	136-846428-001-A*	1
J1	Z-149-3P	808-955125-022-A*	1
(1)	G8ESW PCB	136-456275-D*	1
(22)	Spacer	136-846431-001-A*	2

* Not available as a spare part

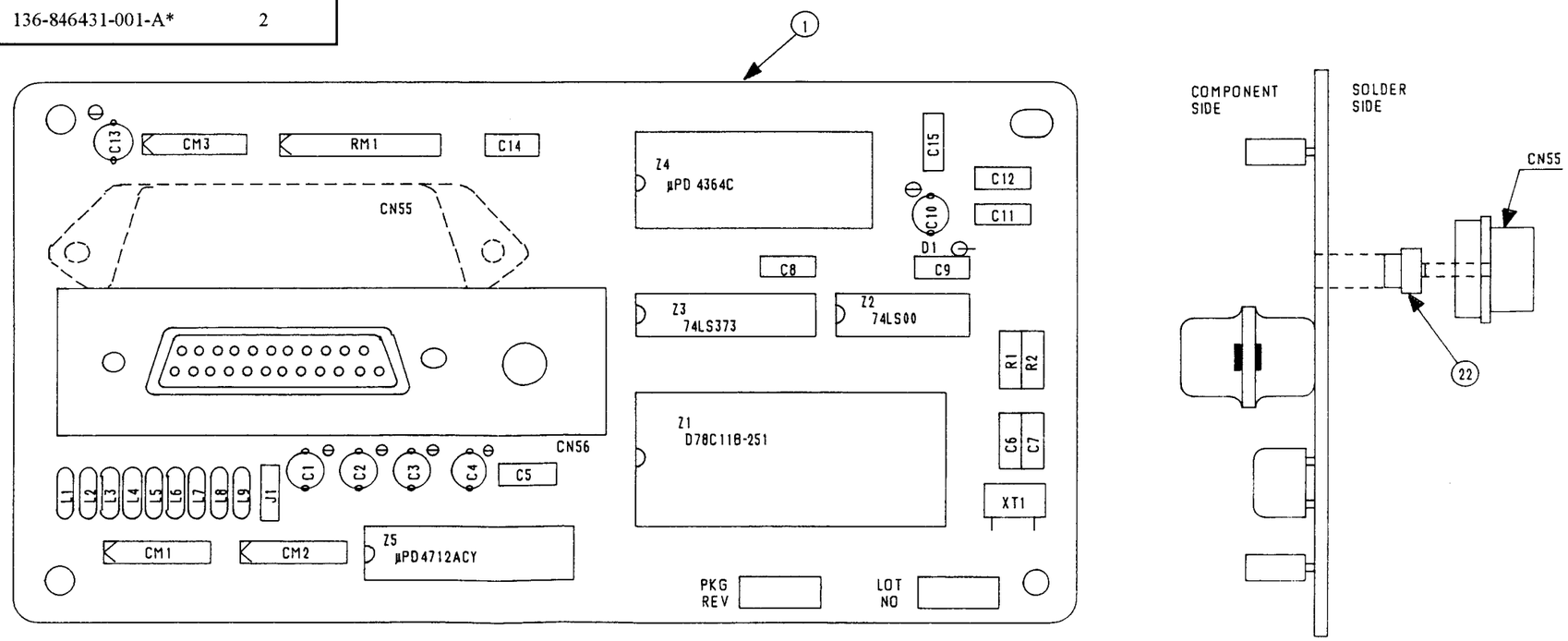


Figure 7-26 RS-232C Interface Board, G8ESW

PSC Sheet Feeder (S) (136-220350-001-B)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Main Unit (S) Assembly (See Figure 7-29 for breakdown)	136-220405-001-B*	1
2	Stacker Guide Assembly	136-788828-001-A	1
2-1	Stacker Guide	136-788834-001-A*	1
2-2	Paper Guide	136-788835-A*	1
3	Center Guide	136-788807-001-A	1
4	Hopper Guide Bar	136-788866-A	2

* Not available as a spare part.

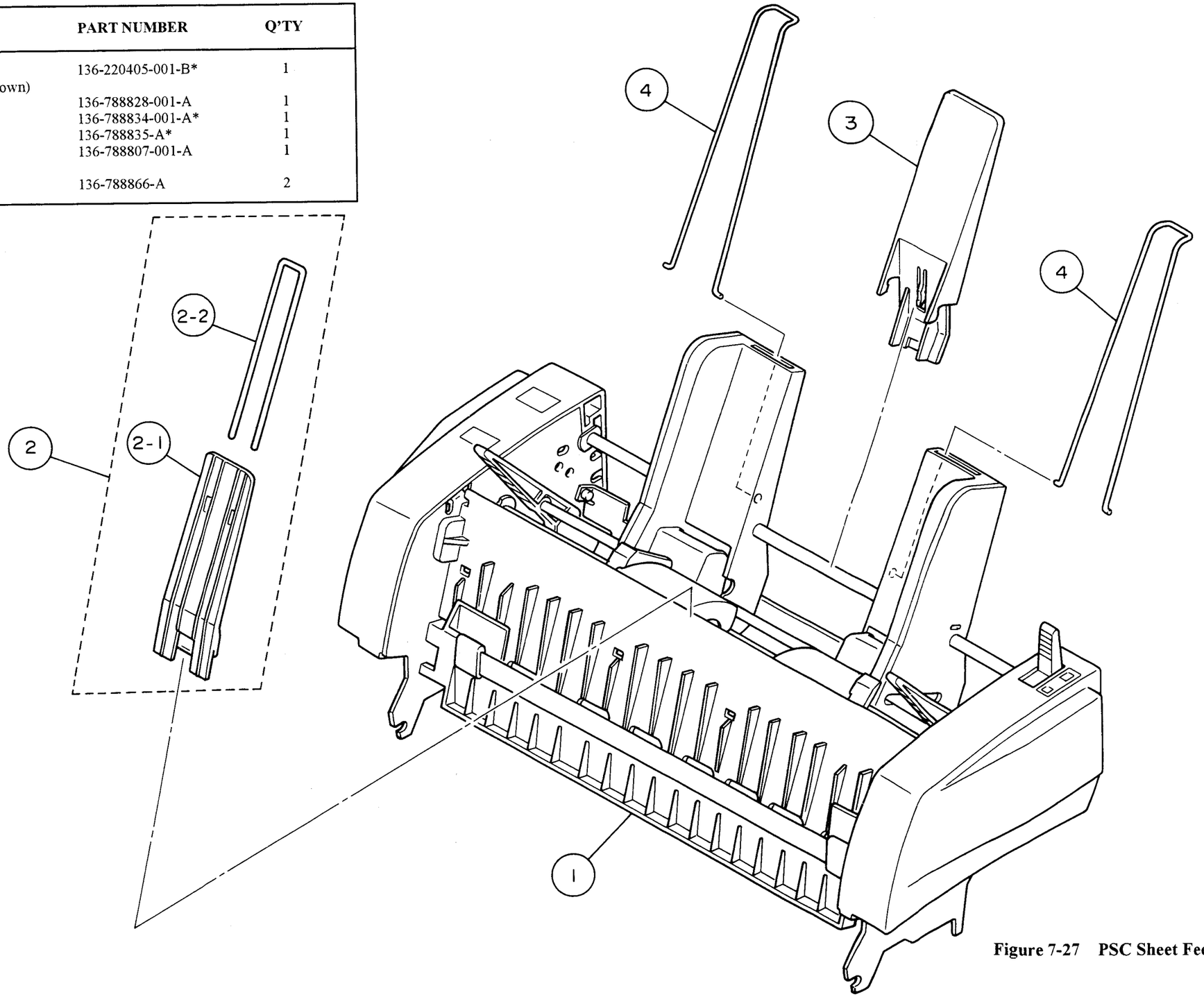


Figure 7-27 PSC Sheet Feeder (S)

PSC Sheet Feeder (L) (136-220350-501-B)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Main Unit (L) Assembly (See Figure 7-30 for breakdown)	136-220405-501-B*	1
2	Stacker Guide Assembly	136-788828-001-A	1
2-1	Stacker Guide	136-788834-001-A*	1
2-2	Paper Guide	136-788835-A*	1
3	Center Guide	136-788807-001-A	1
4	Hopper Guide Bar	136-788866-A	2

* Not available as a spare part.

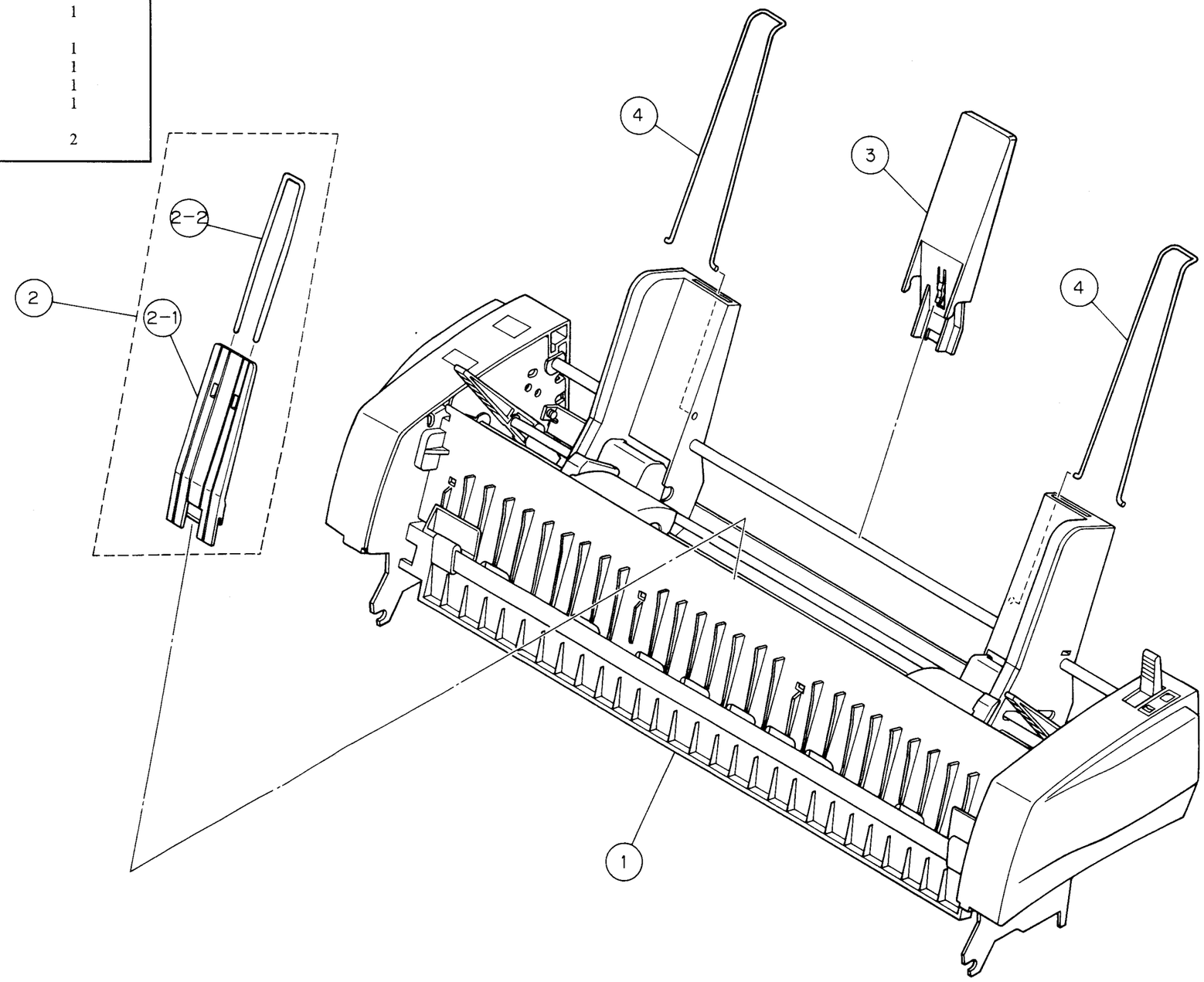


Figure 7-28 PSC Sheet Feeder (L)

Main Unit (S) Assembly (136-220405-001-B)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Unit Sub (S) Assembly (See Figure 7-31 for breakdown)	136-854315-001-A	1
2	Middle Guide Assembly	136-854317-001-A	1
2-1	Middle Stay (S)	136-854340-A	1
2-2	Middle Guide (S)	136-854334-001-A	1
2-3	Manual Guide (S)	136-854332-001-A	1
2-4	Set Piece (R)	136-854342-001-A	1
2-5	Set Piece (L)	136-854342-002-A	1
3	Hopper Unit (S) Assembly	136-854318-001-B	1
3-1	Hopper Base (R)	136-788791-001-A	1
3-2	Hopper Base (L)	136-788791-002-A	1
3-3	Hopper Cover (R)	136-788797-001-A	1
3-4	Hopper Cover (L)	136-788797-002-A	1
3-5	Separator (R)	136-788792-001-A	1
3-6	Separator (L)	136-788792-002-A	1
3-7	Hopper Plate Assembly (R)	136-788794-001-A	1
3-8	Hopper Plate Assembly (L)	136-788794-002-A	1
3-9	Separator Spring	136-788793-001-A	2
3-10	Pressure Spring	136-788861-002-A	2
3-11	Select Arm	136-788798-A	2
3-12	Lock Piece	136-787516-001-A	2
3-13	Hopper Release Bar (S)	136-854324-001-A	1
3-14	Hold Shaft (S)	136-854323-001-A	1
3-15	Pick Roller Cover	136-790905-001-A	1
3-16	Pick Roller Cover	136-790905-002-A	1
3-201	Screw, #2CBTSx3x8x3GF	805-230103-008-0	4
4	Feed Roller Gear Assembly	808-805313-001-A	1
5	Clutch Assembly	136-788800-001-B	1
5-1	Top Gear Assembly	136-788801-001-B	1
5-2	Middle Disk Assembly	136-788804-B	1
5-3	Base Gear 3	136-788889-A	1
6	Nut Washer	136-789407-A	1
7	Pick Roller Shaft	136-854322-001-A*	1
8	Clutch Holder Subassembly	136-789408-A	1
9	Option Gear	136-854327-A	1
10	Idle Gear A	136-788837-A	1
11	Idle Gear B	136-788838-A	1
12	Idle Gear D	136-788836-A	1
13	Idle Gear Z	136-854329-A	1
14	Idle Gear G	136-788911-A	1
15	Pick Roller Gear	136-788841-A	1
16	Release Lever (R)	136-854325-001-A	1
17	Release Lever (L)	136-854325-002-A	1
18	Pick Roller (R)	136-788811-001-A	1
19	Pick Roller (L)	136-788811-002-A	1
20	Select Lever	136-788799-A	1
21	Eject Spring	136-788863-005-A	1
22	Hold Bushing	136-788818-A	4
23	Side Cover (L)	136-854343-001-A	1
24	Side Cover (R)	136-854344-002-A	1
201	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	2
202	Screw, PL-CPIMSx3x8x15BF	805-300003-008-0*	1
203	Screw, SL-CPIMSx3x10x15BF	805-310003-010-0*	1
204	Screw, SL-CPIMSx3x8x15BF	805-310003-008-0*	1
205	E Ring (E-32)	803-010030-032-0*	2

* Not available as a spare part.

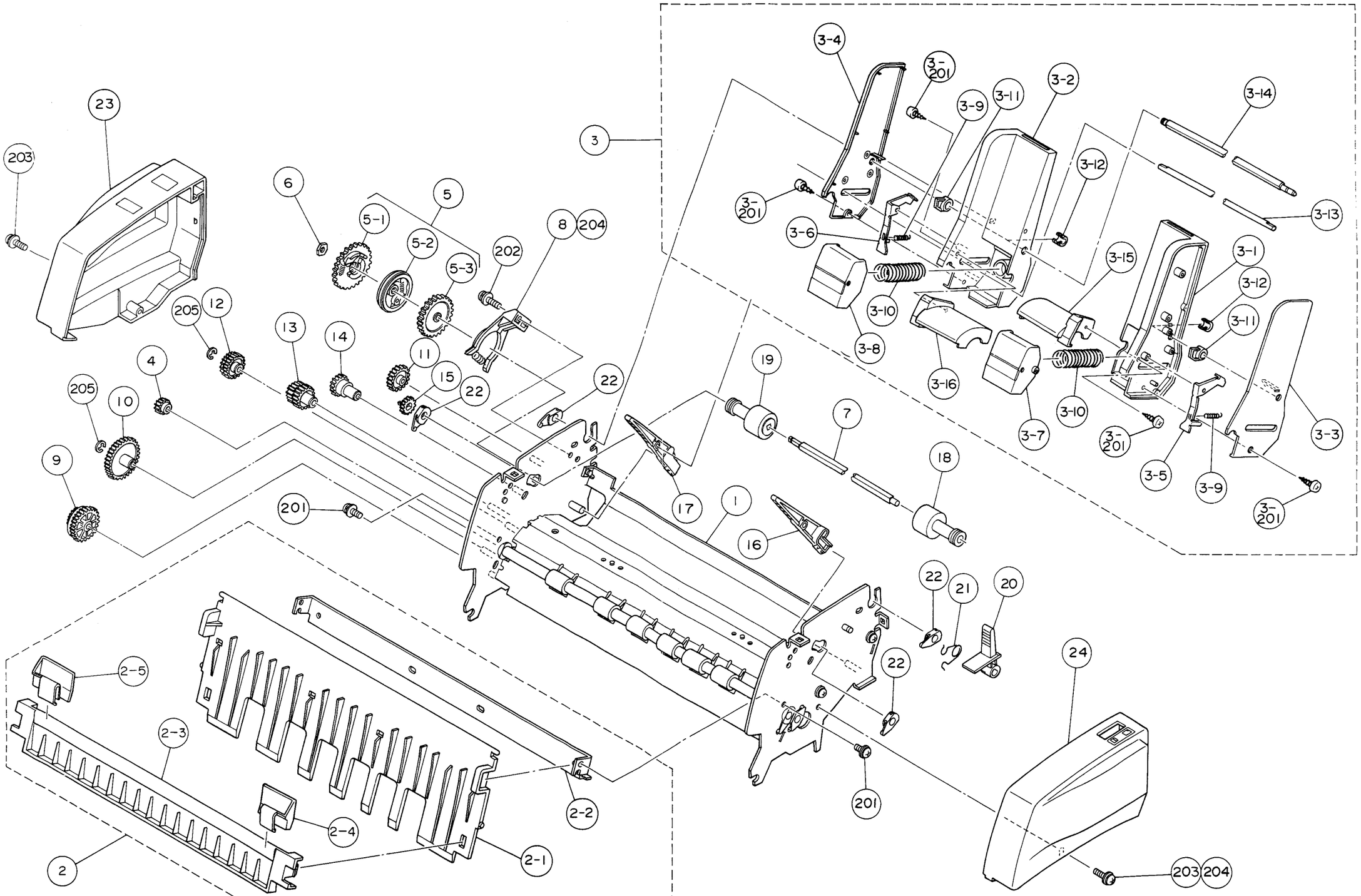


Figure 7-29 Main Unit (S) Assembly

Main Unit (L) Assembly (136-220405-501-B)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Unit Sub (L) Assembly (See Figure 7-32 for breakdown)	136-854315-501-A	1
2	Middle Guide Assembly	136-854317-501-A	1
2-1	Middle Stay (L)	136-854341-A	1
2-2	Middle Guide (L)	136-854335-501-A	1
2-3	Manual Guide (L)	136-854333-501-A	1
2-4	Set Piece (R)	136-854342-001-A	1
2-5	Set Piece (L)	136-854342-002-A	1
3	Hopper Unit (L) Assembly	136-854318-501-B	1
3-1	Hopper Base (R)	136-788791-001-A	1
3-2	Hopper Base (L)	136-788791-002-A	1
3-3	Hopper Cover (R)	136-788797-001-A	1
3-4	Hopper Cover (L)	136-788797-002-A	1
3-5	Separator (R)	136-788792-001-A	1
3-6	Separator (L)	136-788792-002-A	1
3-7	Hopper Plate Assembly (R)	136-788794-001-A	1
3-8	Hopper Plate Assembly (L)	136-788794-002-A	1
3-9	Separator Spring	136-788793-001-A	2
3-10	Pressure Spring	136-788861-002-A	2
3-11	Select Arm	136-788798-A	2
3-12	Lock Piece	136-787516-001-A	2
3-13	Hopper Release Bar (L)	136-854324-501-A	1
3-14	Hold Shaft (L)	136-854323-501-A	1
3-15	Pick Roller Cover	136-790905-001-A	1
3-16	Pick Roller Cover	136-790905-002-A	1
3-201	Screw, #2CBTSx3x8x3GF	805-230103-008-0	4
4	Feed Roller Gear Assembly	808-805313-001-A	1
5	Clutch Assembly	136-788800-001-B	1
5-1	Top Gear Assembly	136-788801-001-B	1
5-2	Middle Disk Assembly	136-788804-B	1
5-3	Base Gear 3	136-788889-A	1
6	Nut Washer	136-789407-A	1
7	Pick Roller Shaft	136-854322-501-A*	1
8	Clutch Holder Subassembly	136-789408-A	1
9	Option Gear	136-854327-A	1
10	Idle Gear A	136-788837-A	1
11	Idle Gear B	136-788838-A	1
12	Idle Gear D	136-788836-A	1
13	Idle Gear Z	136-854329-A	1
14	Idle Gear G	136-788911-A	1
15	Pick Roller Gear	136-788841-A	1
16	Release Lever (R)	136-854325-001-A	1
17	Release Lever (L)	136-854325-002-A	1
18	Pick Roller (R)	136-788811-001-A	1
19	Pick Roller (L)	136-788811-002-A	1
20	Select Lever	136-788799-A	1
21	Eject Spring	136-788863-005-A	1
22	Hold Bushing	136-788818-A	4
23	Side Cover (L)	136-854343-001-A	1
24	Side Cover (R)	136-854344-002-A	1
201	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	2
202	Screw, PL-CPIMSx3x8x15BF	805-300003-008-0*	1
203	Screw, SL-CPIMSx3x10x15BF	805-310003-010-0*	1
204	Screw, SL-CPIMSx3x8x15BF	805-310003-008-0*	1
205	E Ring (E-32)	803-010030-032-0*	2

* Not available as a spare part.

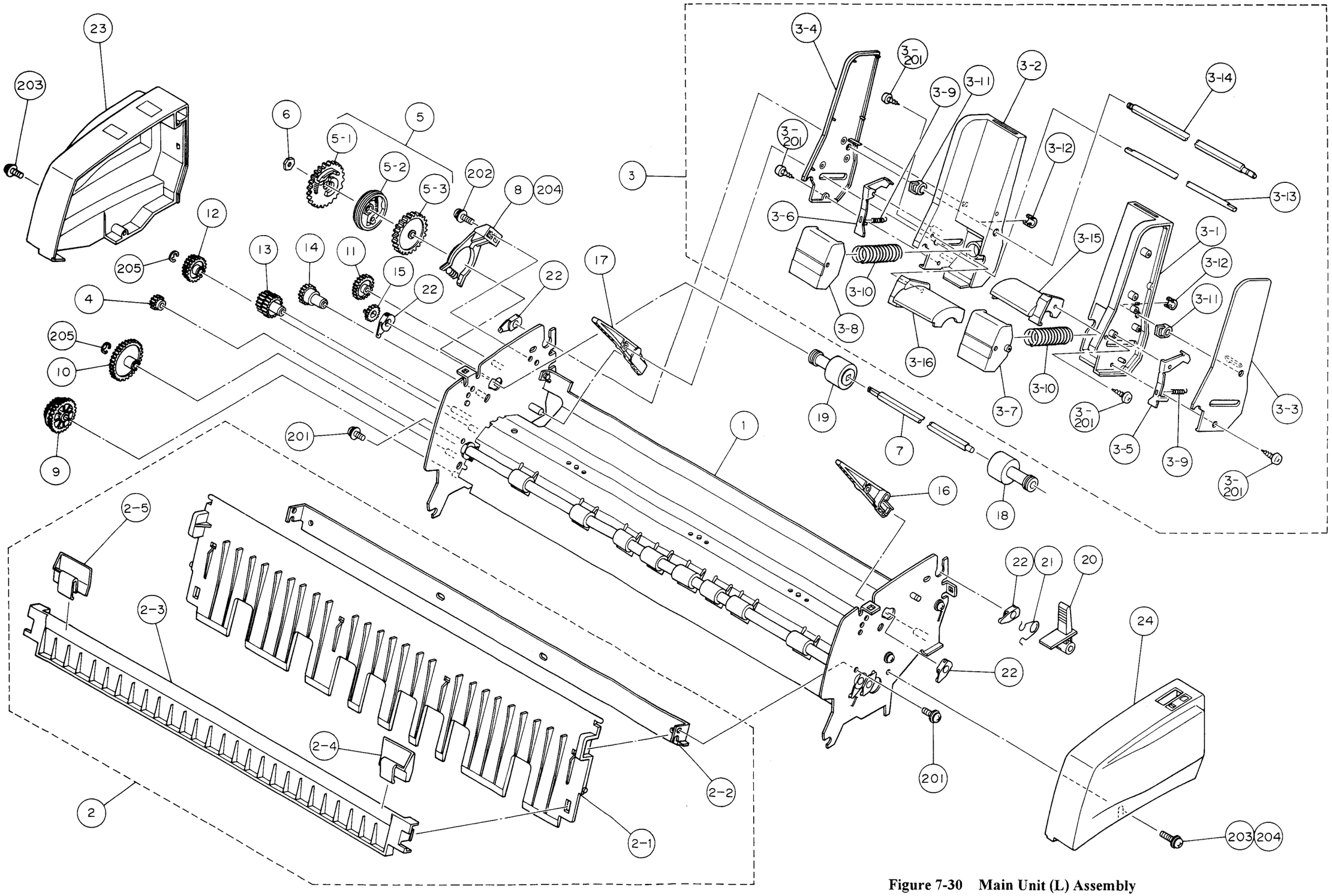
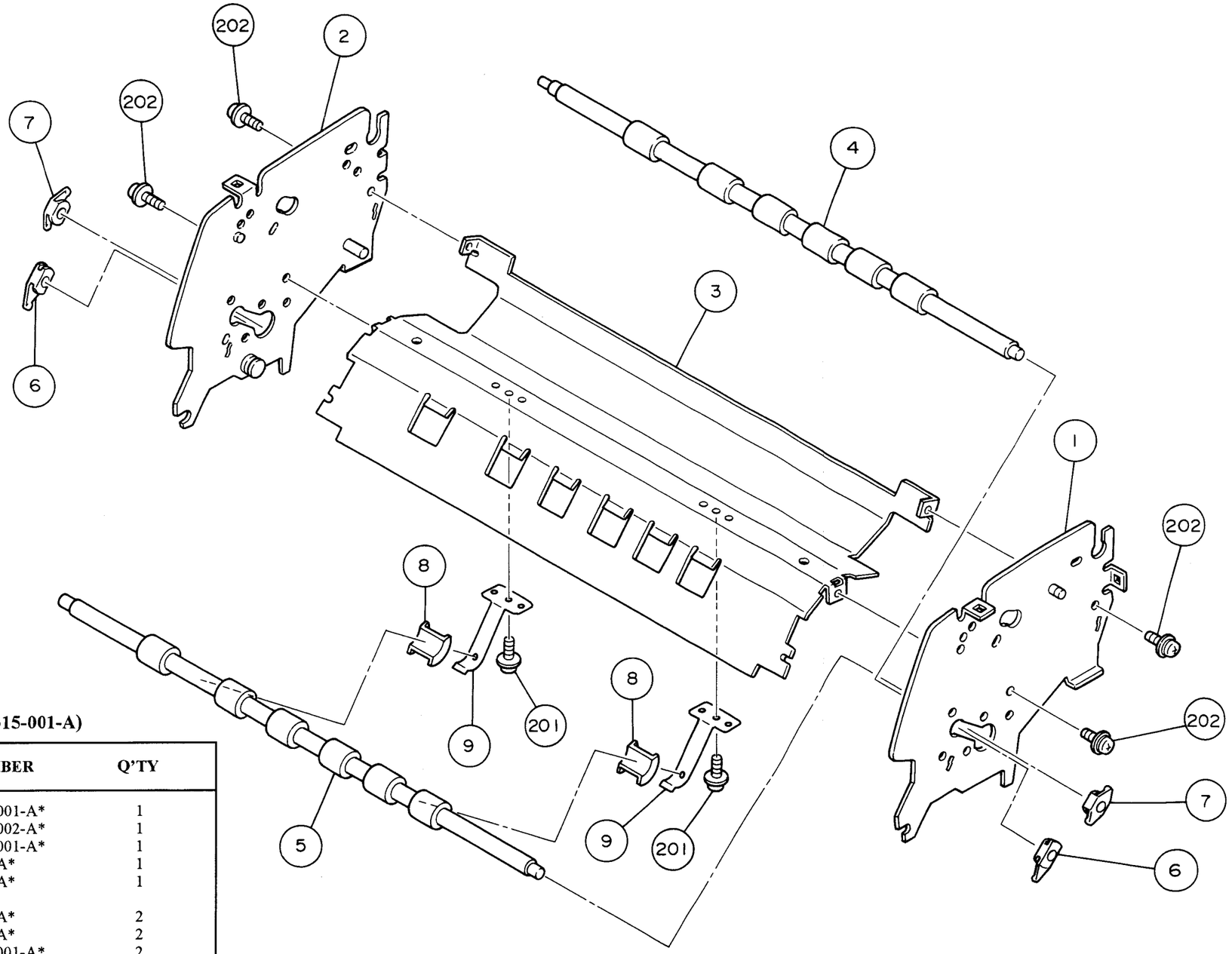


Figure 7-30 Main Unit (L) Assembly

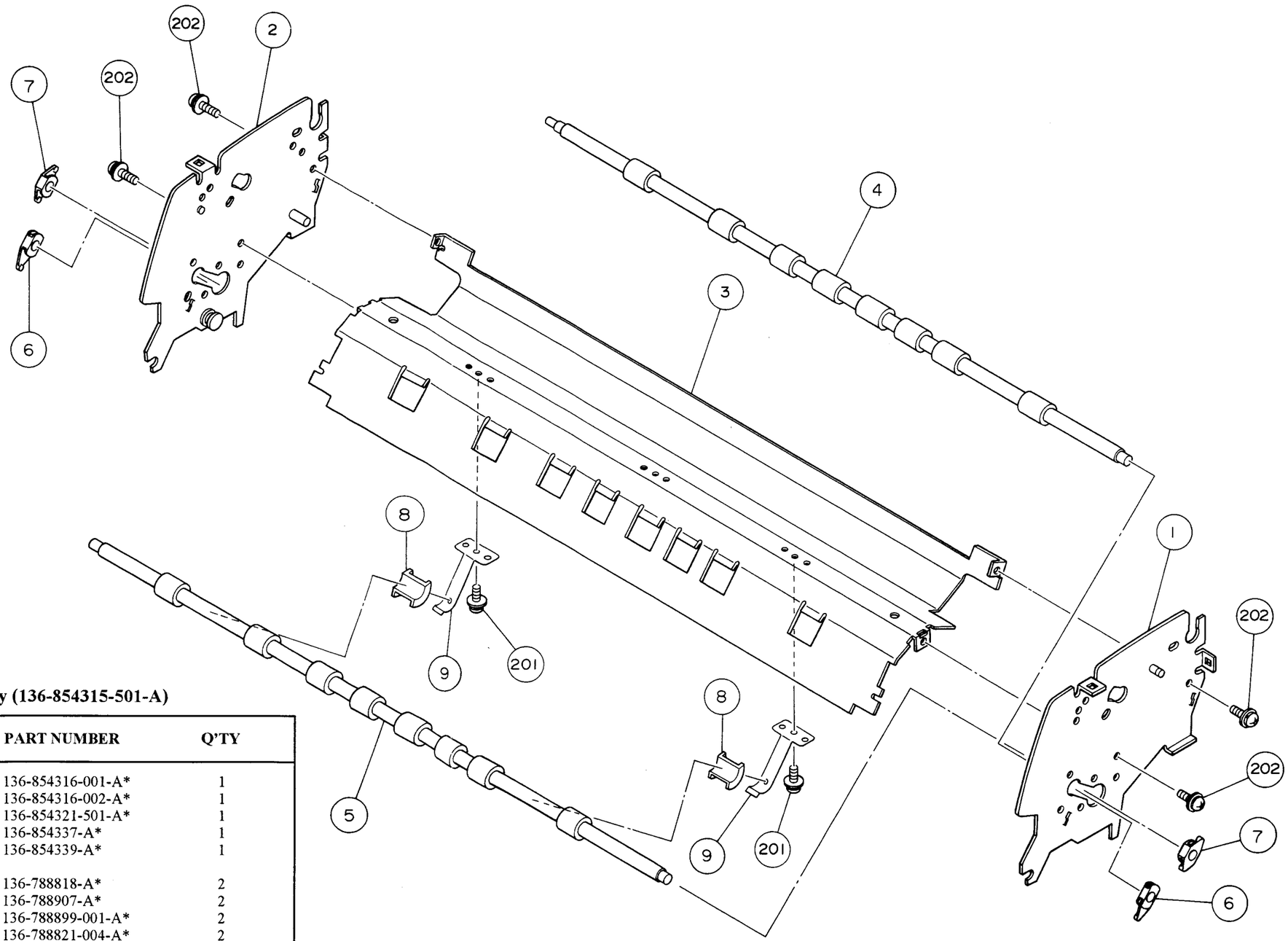


Unit Sub (S) Assembly (136-854315-001-A)

ITEM	PART NAME	PART NUMBER	Q'TY
1	Main Side Frame (R) Assembly	136-854316-001-A*	1
2	Main Side Frame (L) Assembly	136-854316-002-A*	1
3	Main Stay (S)	136-854321-001-A*	1
4	Feed Roller (S)	136-854336-A*	1
5	Pressure Roller (S)	136-854338-A*	1
6	Hold Bushing	136-788818-A*	2
7	Guide Bushing	136-788907-A*	2
8	Back-Up Piece	136-788899-001-A*	2
9	Back-Up Spring	136-788821-004-A*	2
201	Screw, PL-CPIMSx3x5x15BF	805-300003-005-0*	2
202	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	4

* Not available as a spare part.

Figure 7-31 Unit Sub (S) Assembly



Unit Sub (L) Assembly (136-854315-501-A)

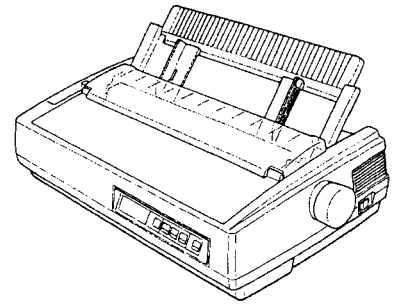
ITEM	PART NAME	PART NUMBER	Q'TY
1	Main Side Frame (R) Assembly	136-854316-001-A*	1
2	Main Side Frame (L) Assembly	136-854316-002-A*	1
3	Main Stay (L)	136-854321-501-A*	1
4	Feed Roller (L)	136-854337-A*	1
5	Pressure Roller (L)	136-854339-A*	1
6	Hold Bushing	136-788818-A*	2
7	Guide Bushing	136-788907-A*	2
8	Back-Up Piece	136-788899-001-A*	2
9	Back-Up Spring	136-788821-004-A*	2
201	Screw, PL-CPIMSx3x5x15BF	805-300003-005-0*	2
202	Screw, PL-CPIMSx3x6x15BF	805-300003-006-0*	4

* Not available as a spare part.

Figure 7-32 Unit Sub (L) Assembly

Section 8

Diagrams



Figures 8-1 through 8-7 contain cabling diagrams for Pinwriter P22Q/P32Q. These diagrams can be used when troubleshooting any potential problem with these printers.

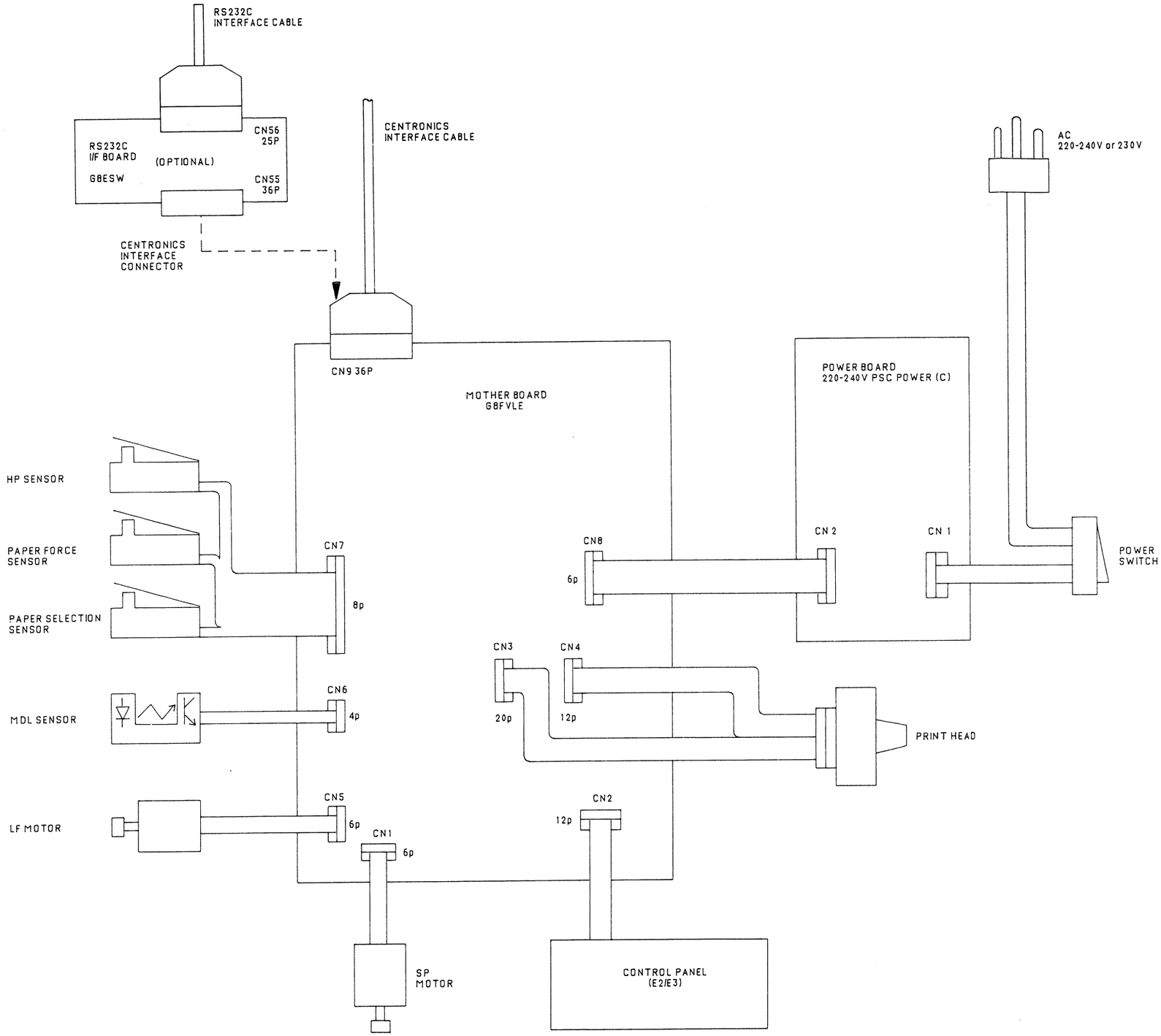


Figure 8-1 Interconnection Circuit Diagram

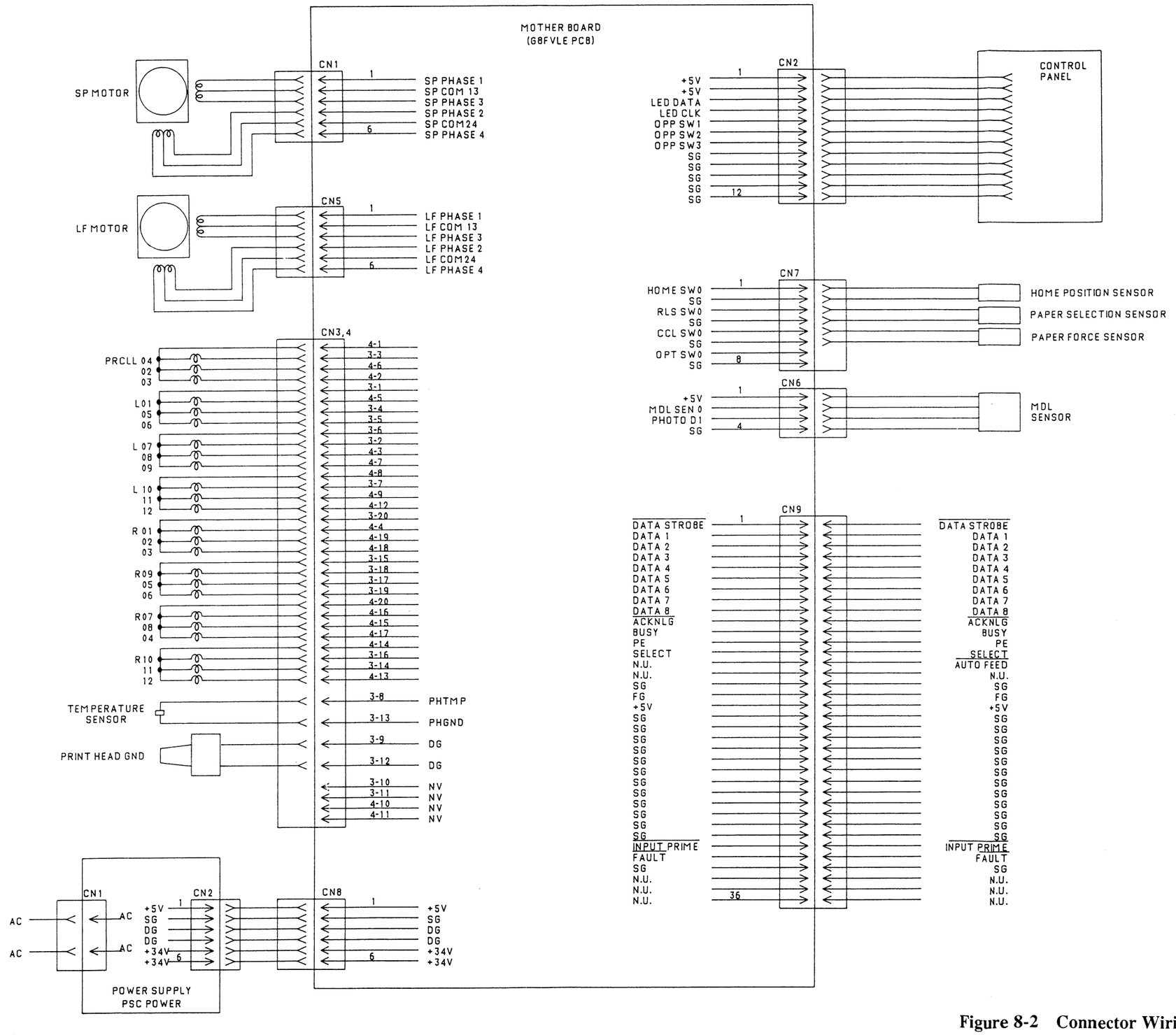


Figure 8-2 Connector Wiring Diagram

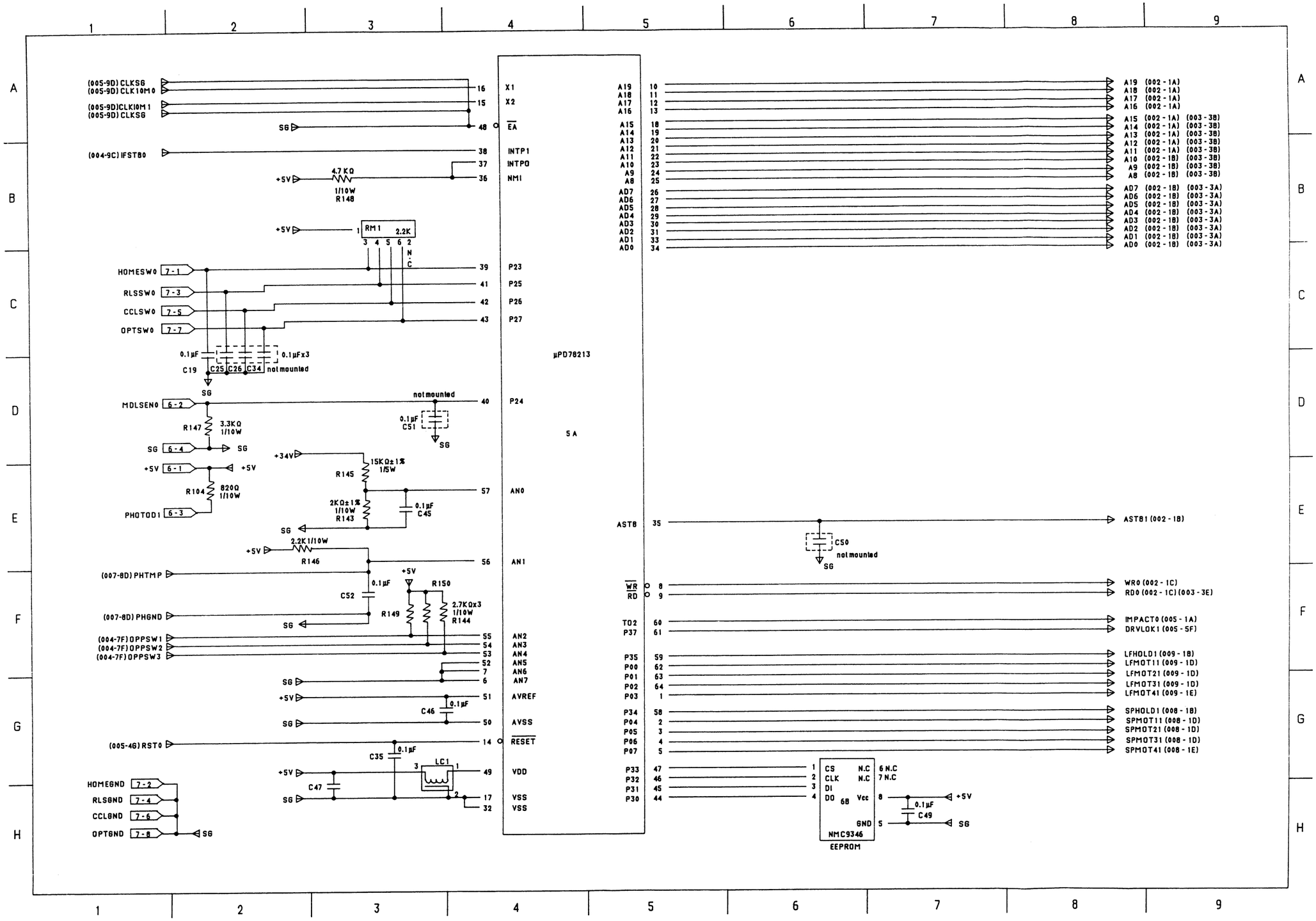


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 1/9

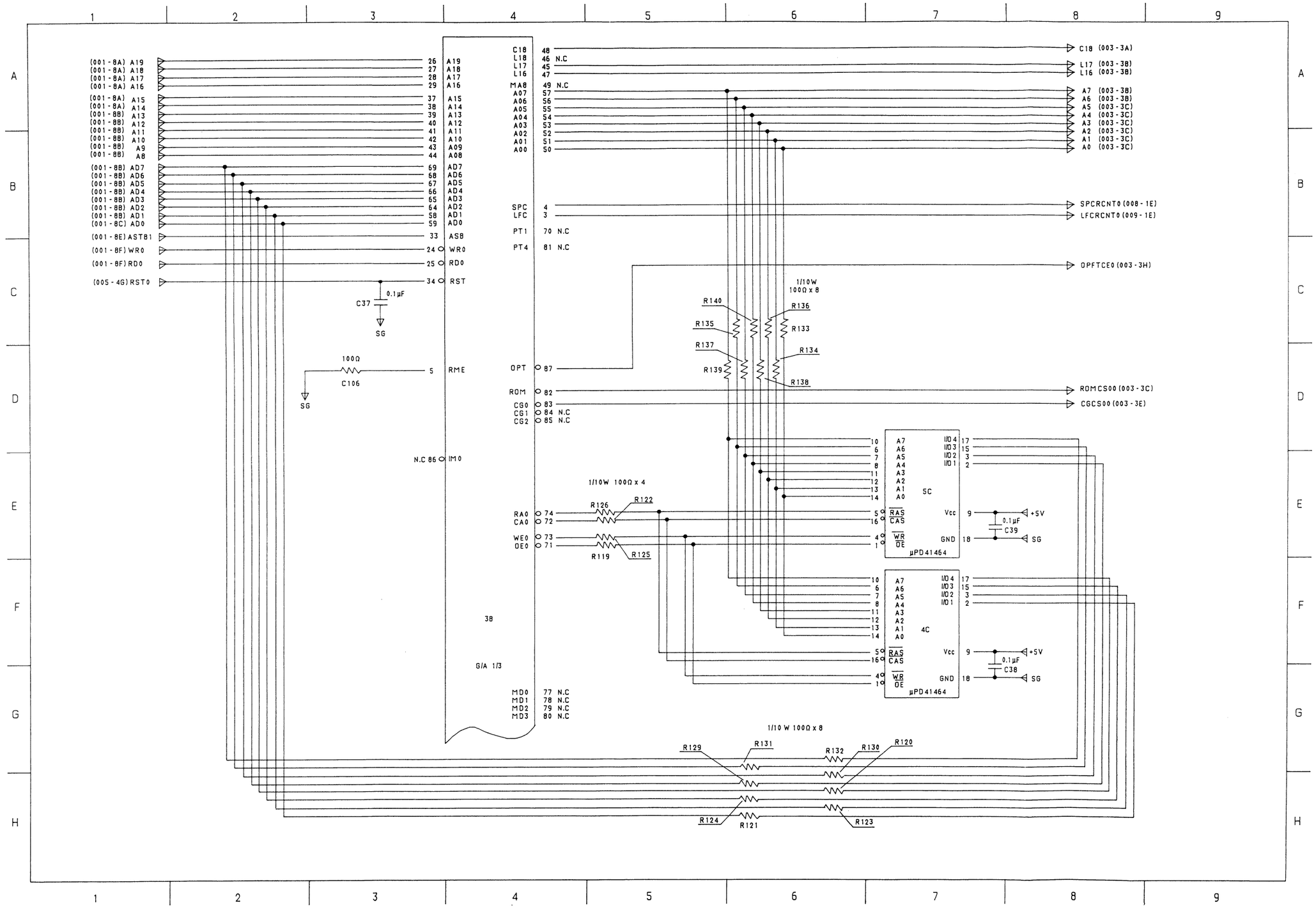


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 2/9

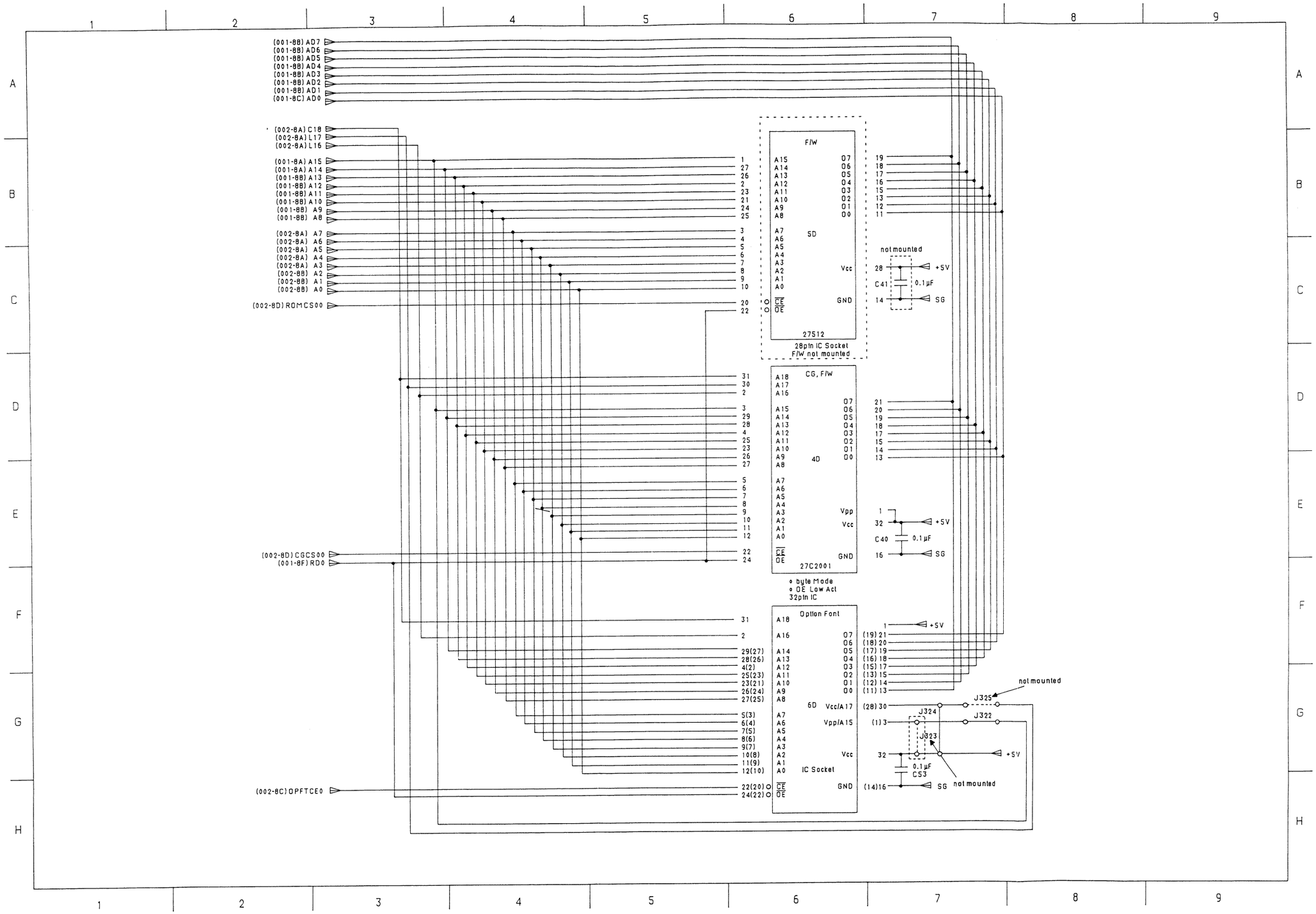


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 3/9

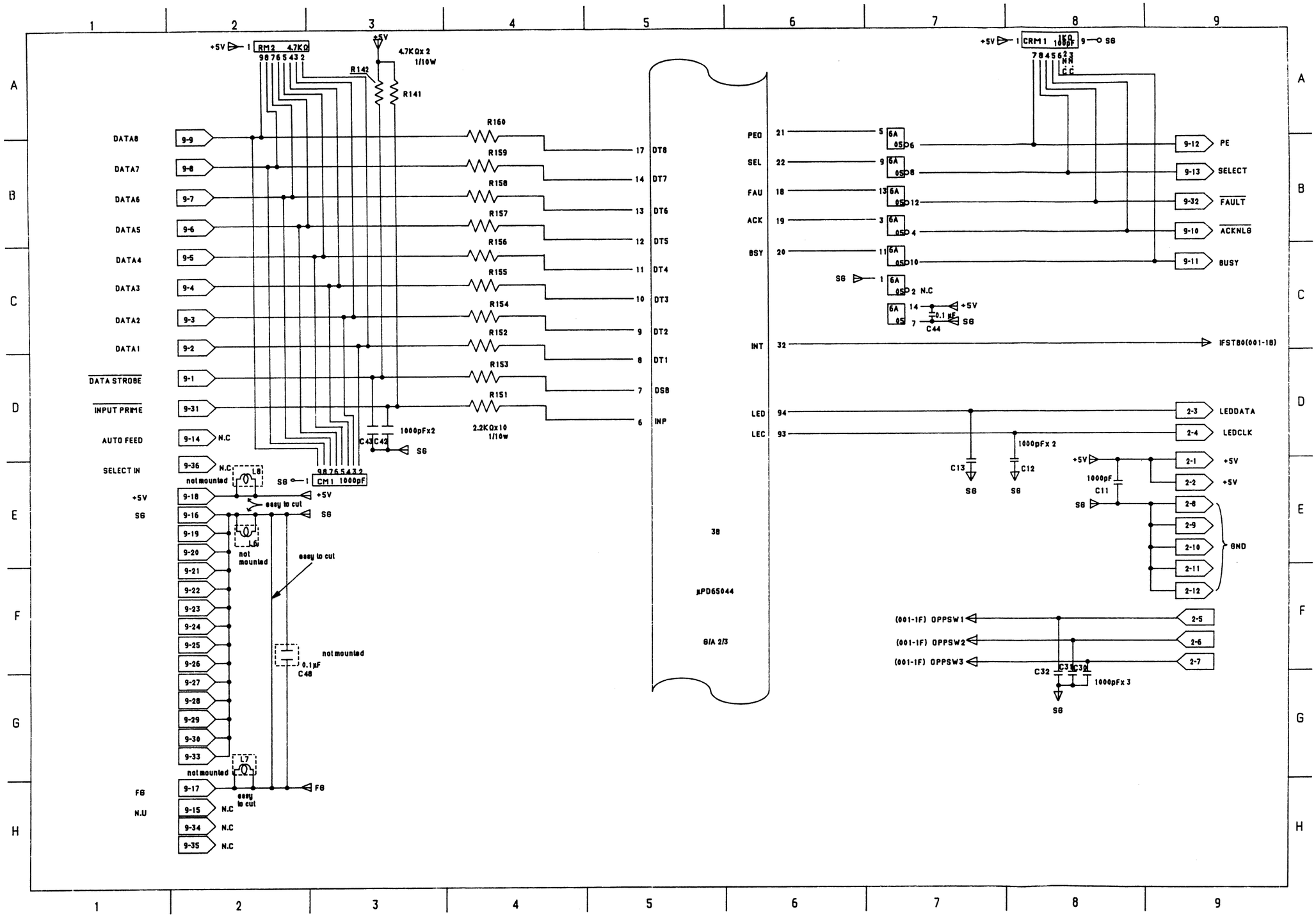


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 4/9

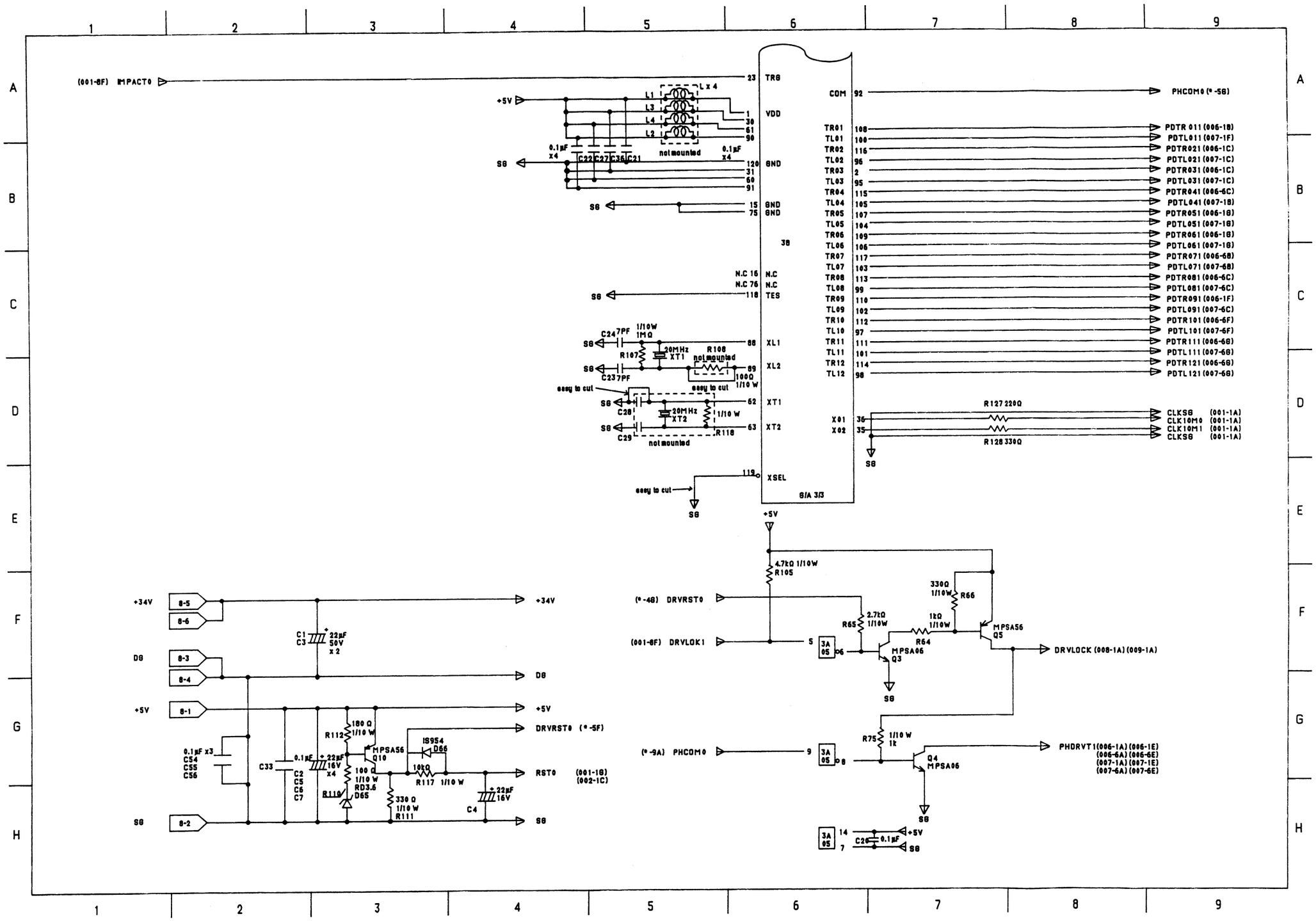


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 5/9

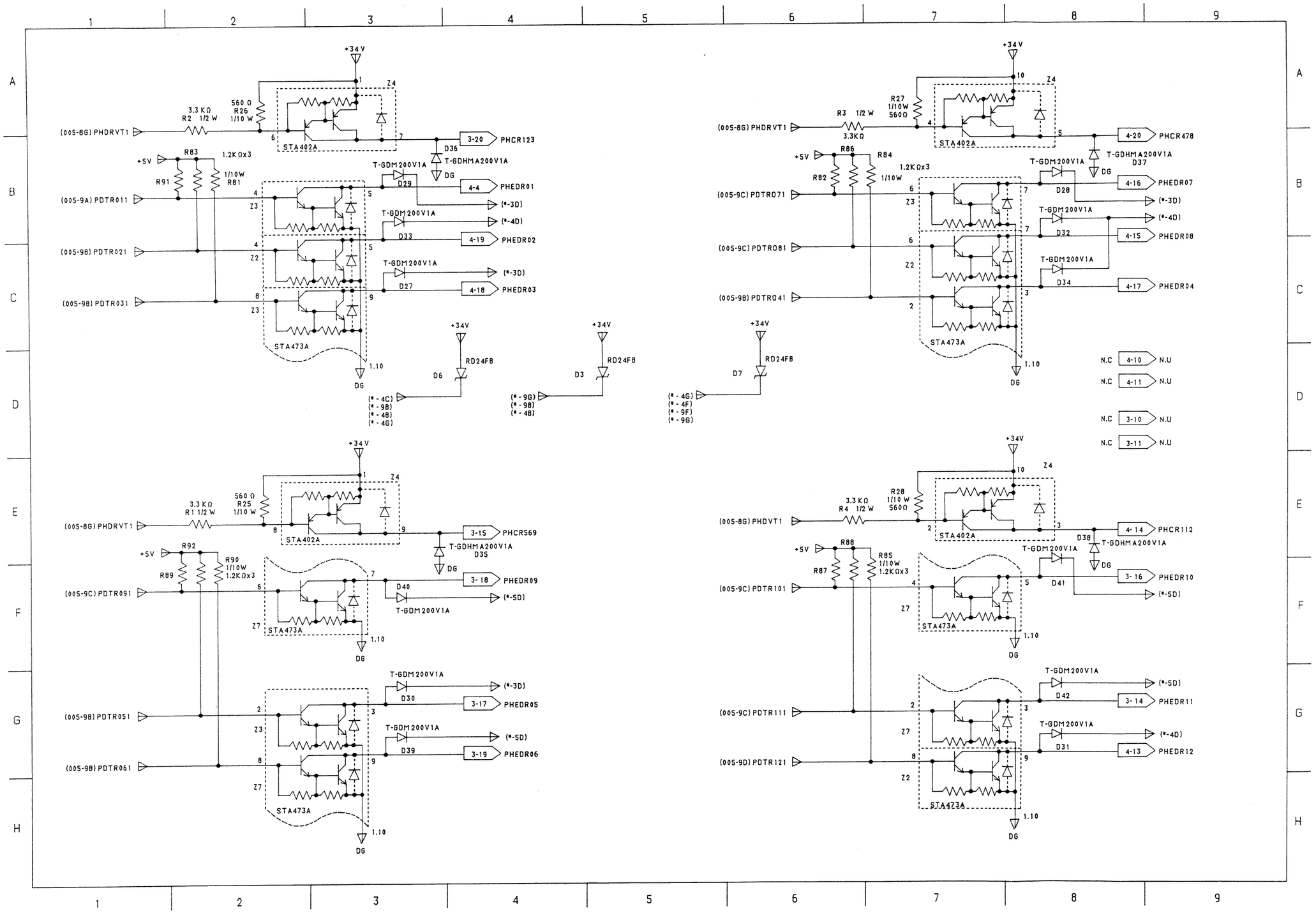


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 6/9

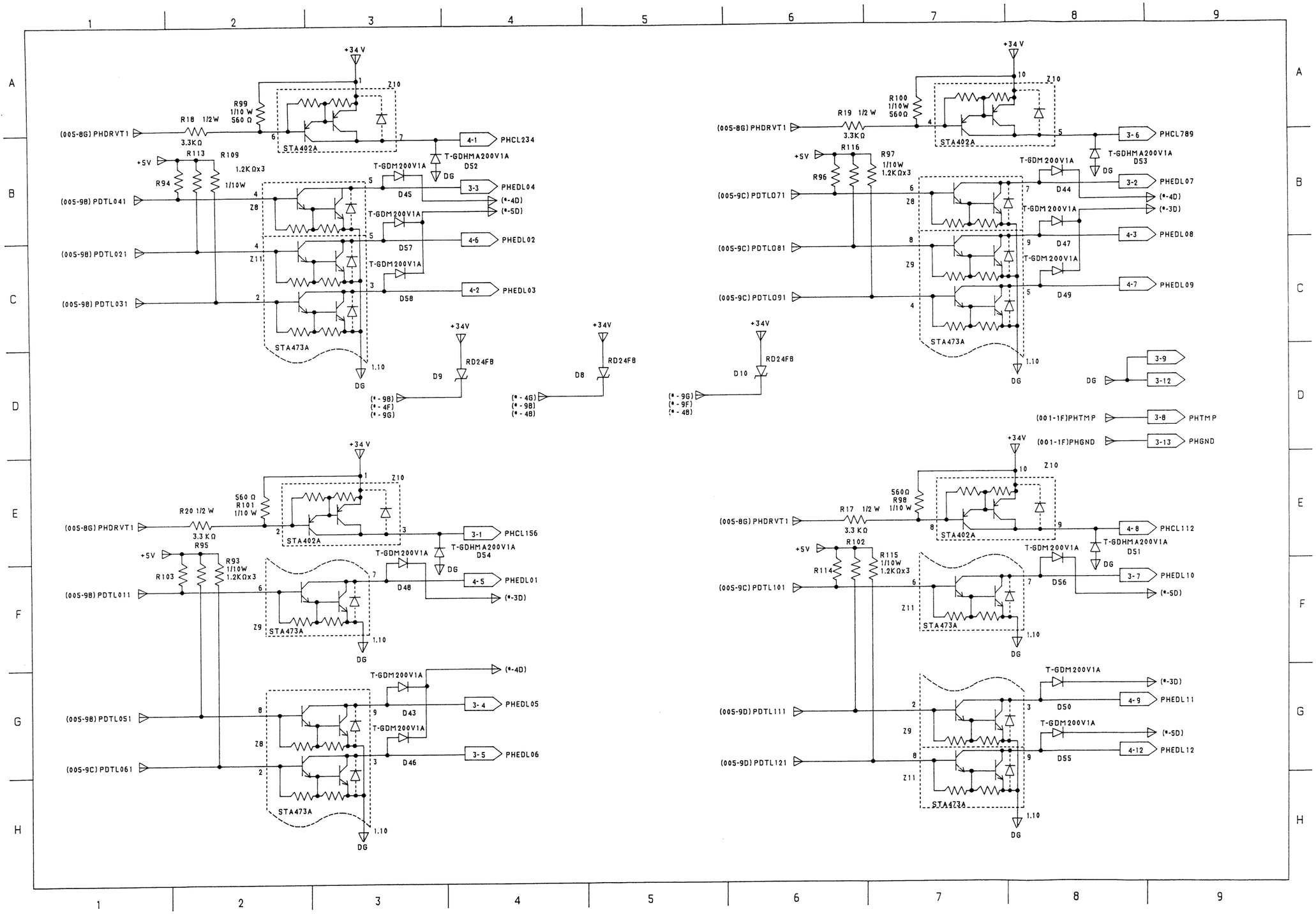


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 7/9

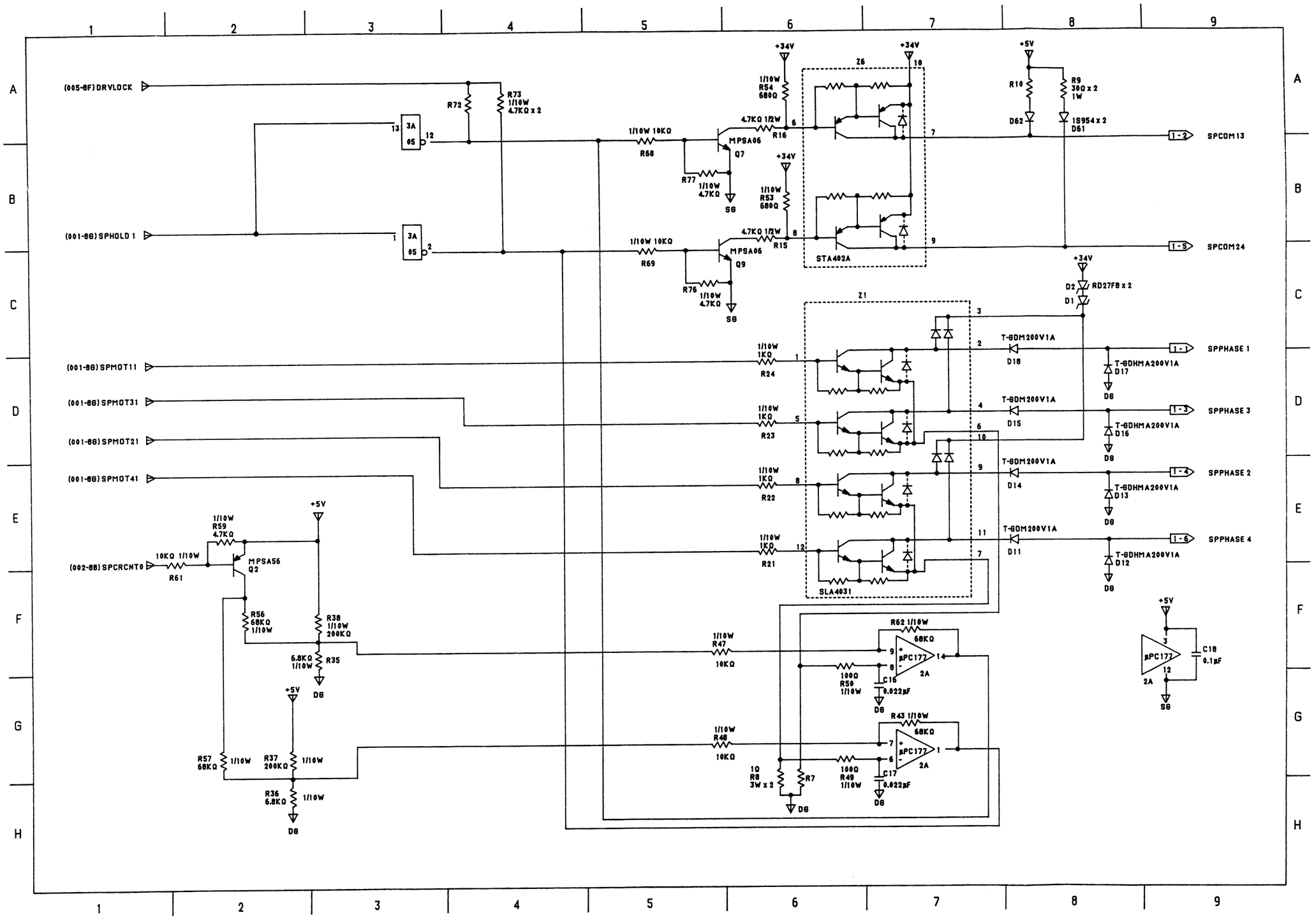


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 8/9

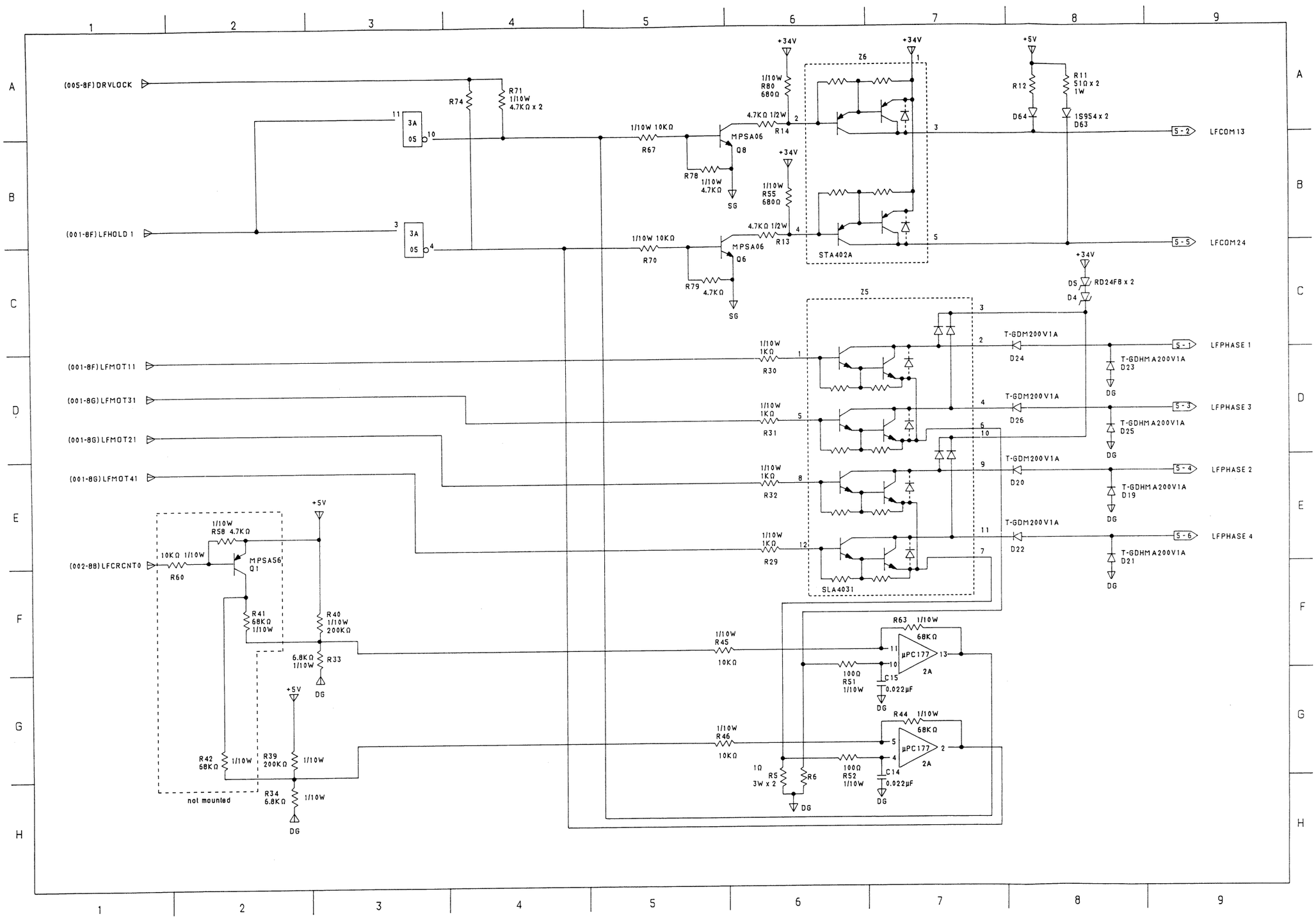


Figure 8-3 Circuit Diagram of Mother Board, G8FVLE - 9/9

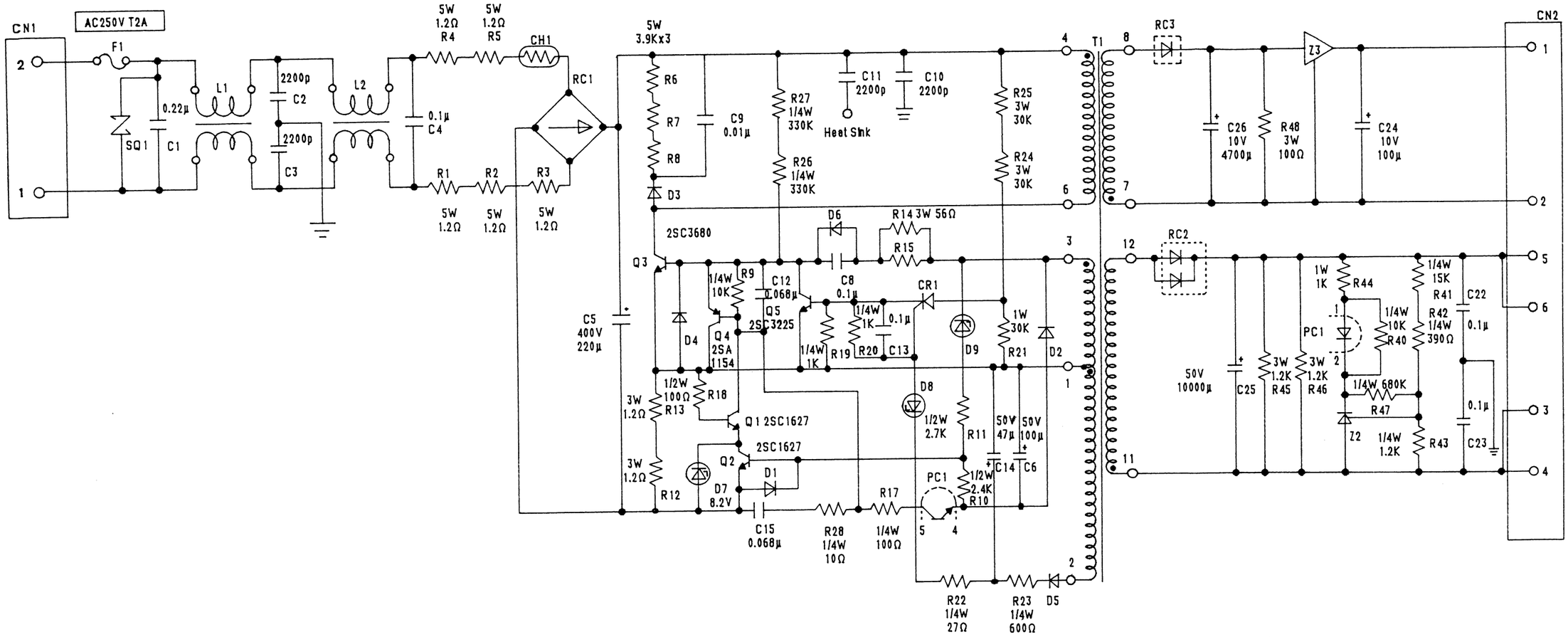


Figure 8-4 PSC POWER (C) Circuit Diagram - GRP 313

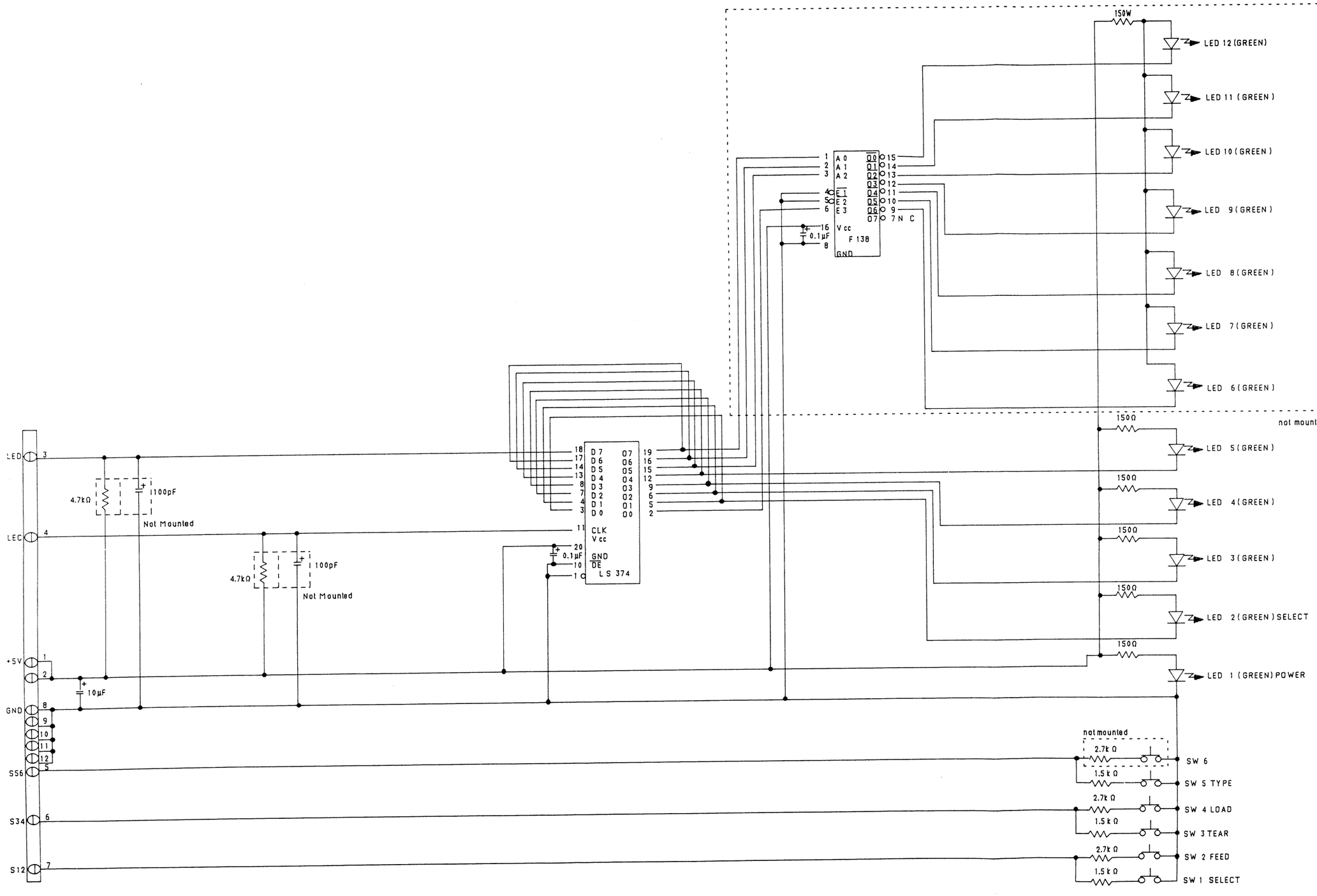


Figure 8-5 Operator Panel Circuit Diagram

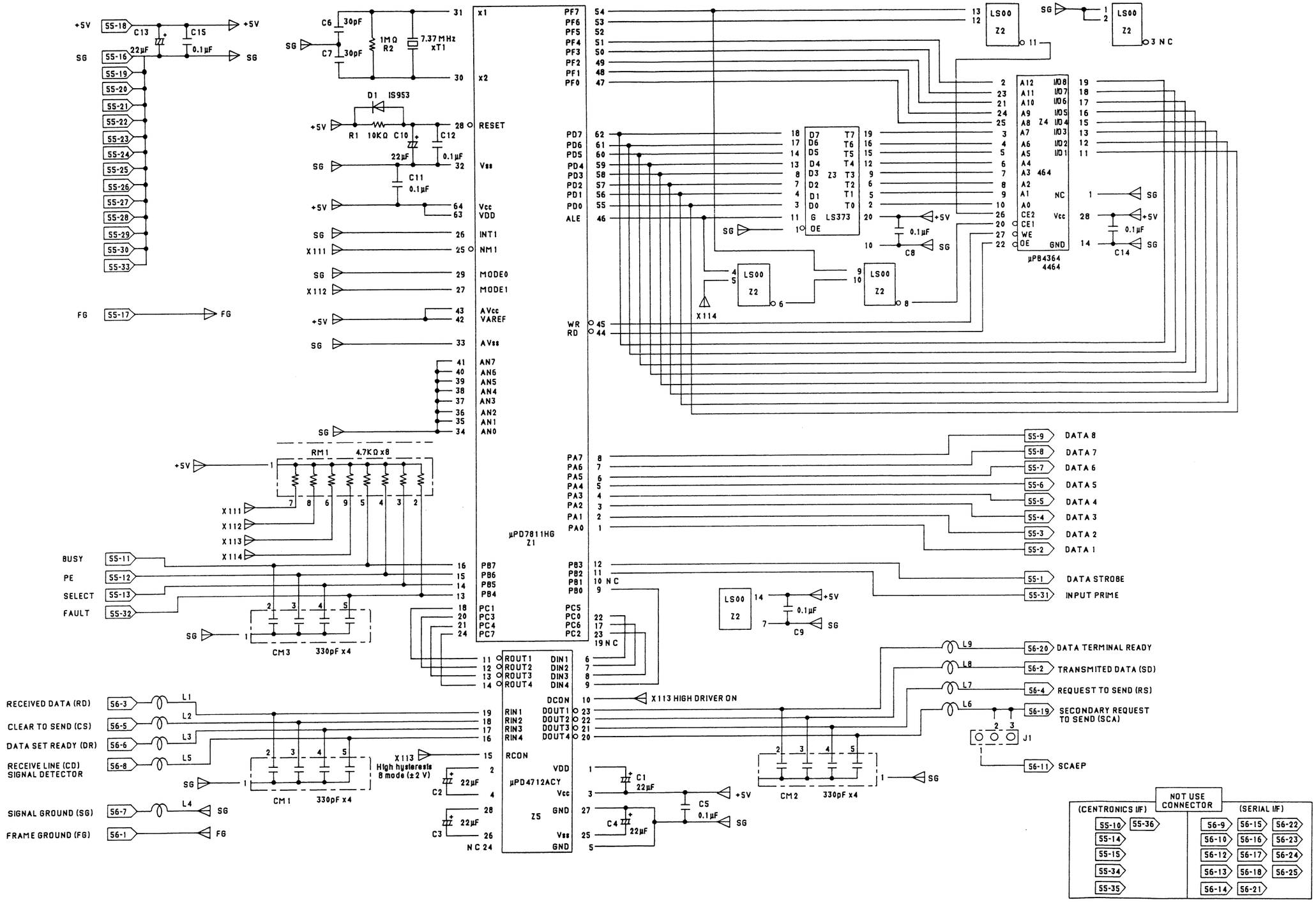


Figure 8-6 G8ESW PCB Circuit Diagram

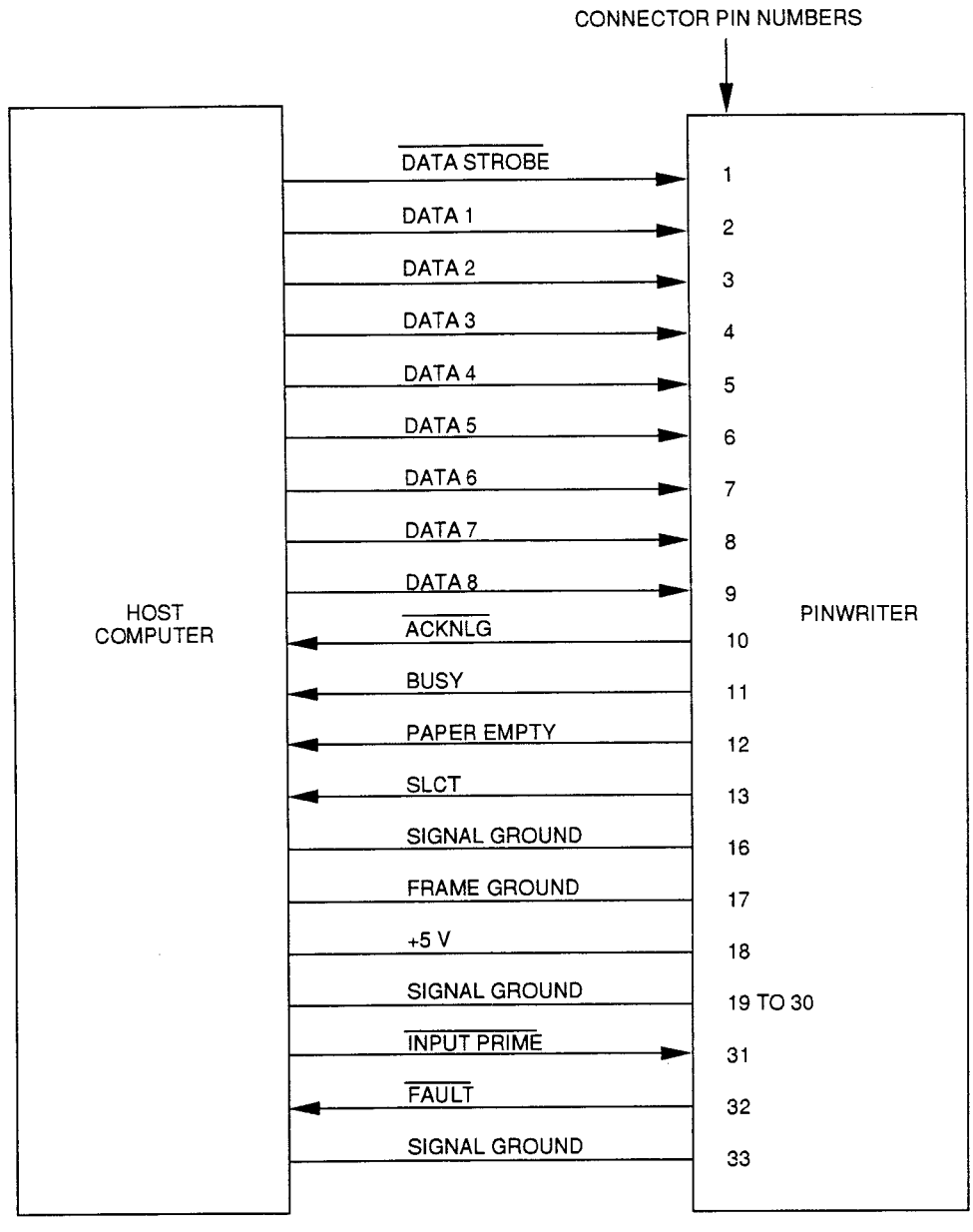


Figure 8-7 Parallel Interface Lines Diagram

Table 8-1 Parallel Interface Lines Description

SIGNAL PIN	SIGNAL	DIRECTION	DESCRIPTION
1	$\overline{\text{Data Strobe}}$	To printer	Strobes a data byte to the printer. The minimum pulse width of the signal is 1 µs, active low.
2	Data 1	To printer	Data lines 1 to 8 transmit ASCII code. The lines are high (true) at logic 1 and low (false) at logic 0. The minimum pulse width of the signal is 2 µs.
3	Data 2		
4	Data 3		
5	Data 4		
6	Data 5		
7	Data 6		
8	Data 7		
9	Data 8		
10	$\overline{\text{Acknlg}}$	From printer	An 8-µs pulse on this status line indicates that the printer received a data byte and it can receive another.
11	Busy	From printer	This signal goes high when the printer is busy because • the buffer is full, or • it is initializing, or • it is deselected, or • a printer fault has occurred, or • a data is received and next data can not be received yet.
12	Paper Empty	From printer	This status line goes high when the printer is out of paper.
13	Slct	From printer	This status line goes high when the printer is selected. The line is low when the printer is deselected.
14, 15	—	—	Unused.
16	SG	—	Signal ground.
17	FG	—	Frame ground.
18	+5 V	—	+5 V.

Table 8-1 Parallel Interface Lines Description (cont'd)

SIGNAL PIN	SIGNAL	DIRECTION	DESCRIPTION
19, 20 21, 22 23, 24 25, 26 27, 28 29, 30	SG		Ground. Pin 19 is ground for $\overline{\text{Strobe}}$. Pins 20 to 27 are ground for data 1 to 8, pin 28 is ground for $\overline{\text{Acknlg}}$, pin 29 is ground for $\overline{\text{Busy}}$, and pin 30 is ground for $\overline{\text{Input Prime}}$.
31	$\overline{\text{Input Prime}}$	To printer	A low on this line initializes the printer. The signal pulse width must be more than 15 µs.
32	$\overline{\text{Fault}}$	From printer	This line goes low when the printer is • out of paper, • deselected, or • in a fault state.
33	SG	—	Signal ground.
34	—	—	Unused.
35	—	—	Unused.
36	—	—	Unused.

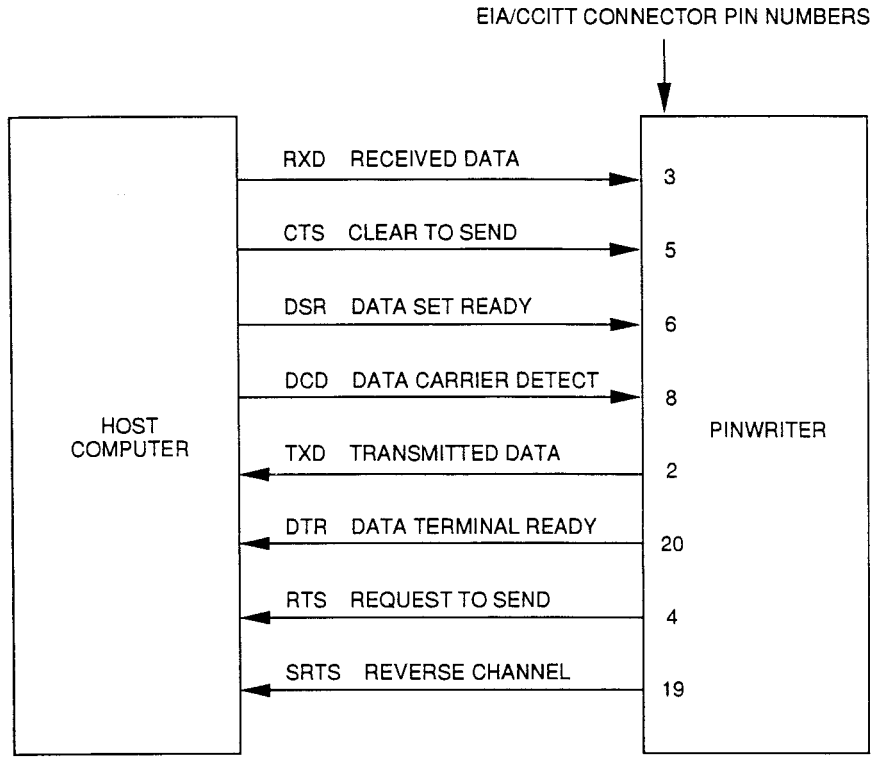


Figure 8-8 Serial Interface Lines Diagram

Table 8-2 Serial Interface Lines Description

SIGNAL/CONTROL LINES	DIRECTION OF SIGNAL	DESCRIPTION
Data Carrier Detect (DCD)	To printer	This line must be active (on) for the Pinwriter to operate. The line goes active when the modem detects a carrer tone, indicating that the phone line is usable. When DCD, CTS, DSR signals are disabled, this line goes active even if this signal line is not connected.
Data Terminal Ready (DTR)	From printer	This line is the same fucntional signal as Reverse Channel (SRTS).
Data Set Ready (DSR)	To printer	This line must be active (on) for the Pinwriter to operate. The line goes active when the modem power is on and the modem is not in a test mode. When DCD, CTS, DSR signals are disabled, this line goes active even if this signal line is not connected.
Request to Send (RTS)	From printer	This line goes active (on) when the Data Terminal Ready is available and when the modem replies with Data Set Ready.
Clear to Send (CTS)	To printer	This line must be active for the Pinwriter to operate. The input signal from the modem goes active when the modem is ready for the Pinwriter to transmit. When DCD, CTS, DSR signals are disabled, this line goes active even if the signal line is not connected.
Transmitted Data (TXD)	From printer	This line transmits ASCII-coded digital data to a modem. This line is held at Mard (logic "1") when no data is being transmitted.
Received Data (RXD)	To printer	This line holds ASCII-coded digital data received by the Pinwriter. This line must be held at Mark (logic "1") when no data is being received from the modem.
Reverse Channel (SRTS)	From printer	This line goes from active (on) to inactive (off) when any one of the following occurs. • 8-kilobyte receive buffer is almost full (8056 characttters). • Printer is out of paper. • Printer's condition must be checked.